

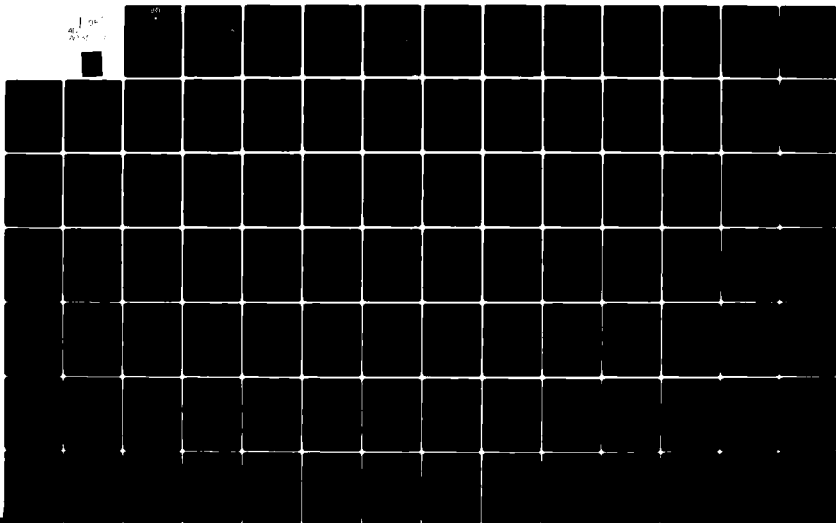
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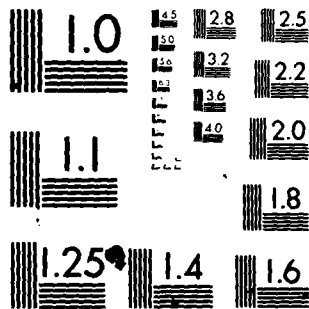
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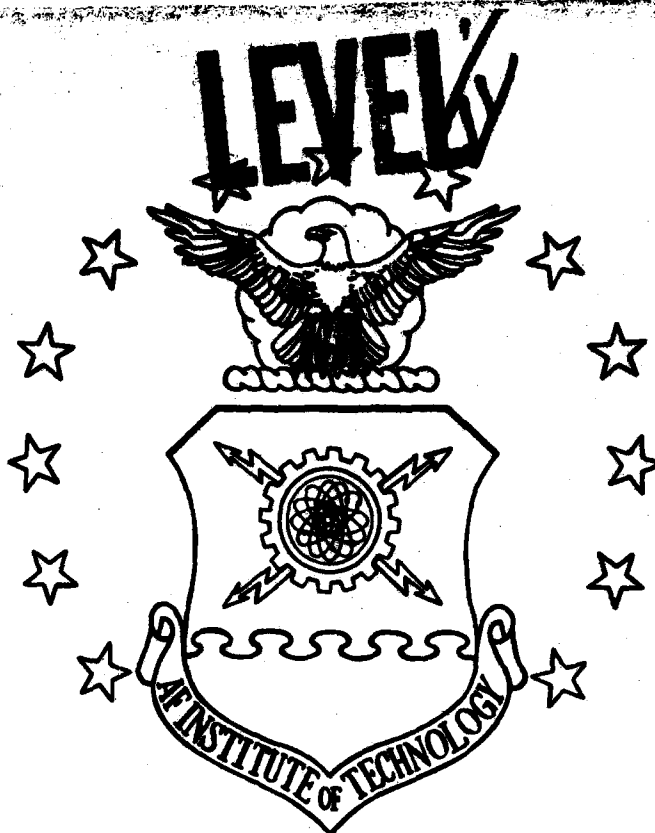
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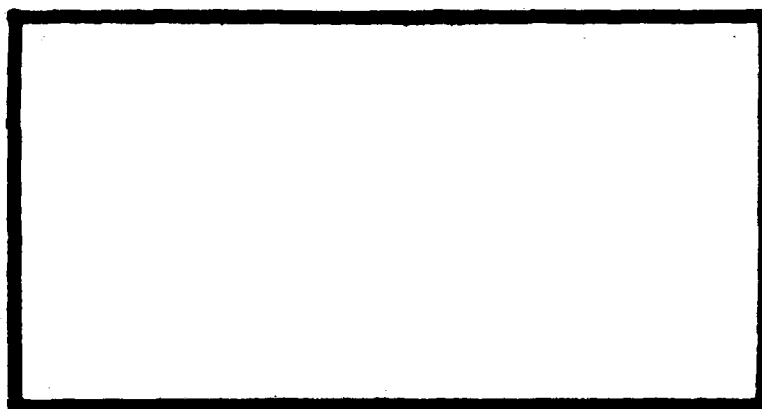


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POLICY CAPTURING APPROACH

2d LT. Douglas Thorsvik, USAF

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ARBITRATOR EVALUATION
AND SELECTION: A
POLICY CAPTURING APPROACH

A Thesis

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Systems Management

By

Douglas Thorsvik, BS
Second Lieutenant, USAF

September 1980

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This thesis, written by

2d LT. Douglas Thorsvik

has been accepted by the undersigned on behalf of the
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fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN SYSTEMS MANAGEMENT

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Abstract

Policy capturing models have been applied in a wide variety of decision making scenarios with good results. This study validates the model Lambert developed in a recent thesis effort in order to help determine its potential for application in the labor-management arbitration setting. The experimental design permits policy comparisons between scorers and between arbitrators. The data was collected by having graduate students read and score published arbitration cases from three arbitrators. The data is analyzed using regression and ANOVA techniques.

The results indicate a cue measurement problem is present and that the scorer makes a significant difference in the resulting regression model. The regression models were able to explain only 30 percent of the variance at best, indicating prediction using discriminant analysis would not be reliable. A modified model was developed to solve the cue measurement problem, and the resulting models were able to explain 90 percent of the variance. However, award prediction using discriminant analysis is no longer valid. The modified modeling results allowed significant policy difference to be established between the three arbitrators selected for this study.

Policy capturing provides a systematic framework for analyzing the decision policies of different arbitrators. Further research is recommended using the modified model.

CHAPTER I

INTRODUCTION

This research effort attempts to model the decision process of different arbitrators and compare the resulting individual models. A quantitative case study approach is used to capture each arbitrator's decision policy using linear modeling techniques. The literature is searched to address the feasibility of potential labor and management applications of such models in the real world arbitration setting.

A Brief on Arbitration

The arbitration process is a well utilized method of resolving grievances that progress unsettled through the formal grievance procedures specified in Labor-Management bargaining agreements. It is estimated about 95 percent of all bargaining agreements between labor unions and management have provisions for arbitration as the final method of resolving disputes.

When a dispute goes unsolved through the grievance process, an arbitrator is selected to decide on the solution to the grievance in question. Both the union and management present their respective sides of the case to the arbitrator in a manner very similar to that of a court of law; however, many of the restrictions concerning acceptable evidence and

witness testimony are relaxed. The decision of the arbitrator, who acts much like a judge, is final. The Supreme Court in the Steelworkers Trilogy, 1960, essentially said arbitrators decisions are not reviewable by the courts. Arbitration was protected as a result by three basic provisions. Arbitration clauses in the contract require arbitration as the solution to unresolved grievances. The content and arbitrability of the grievance is to be determined by the arbitrator and not the court. If an arbitration clause is included in the contract, the court will order arbitration unless the dispute is clearly outside the scope of the contract (Fossum:353).

Significance of Arbitration

As a result of Executive Order 11491, effective January 1, 1970, the inclusion of arbitration clauses in all federal labor contracts was authorized, and a "new dimension" was added to the arbitration field. The rapid growth of public sector unions has introduced federal government employers and employees to the labor arbitrator (Aaron, et al:xiii). Since the issues that are arbitrated in the public sector are very similar to those in the private sector (Trotta:366), this means federal managers must become knowledgeable in the grievance procedure and, more specifically, the arbitration process in order to efficiently and effectively settle the disputes that arise.

Arbitration is not a matter taken lightly in the private sector and it should not be taken lightly in the

public sector either. From management's point of view arbitrators' awards in crucial grievance issues might unfavorably restrict the scope of management. Even if the grievance is not of such importance the costs, time and money, of arbitration are significant and this makes screening grievances and adequate case preparation of extreme importance.

In many private firms management goes to great lengths to prepare for and present their case. The selection of the arbitrator is an important part of this preparation. For example, Robert Coulson notes, "parties engaged in the 'crystal-ball' selection of arbitrators 'believe that their experience and judgment make it possible for them to match the issue to the arbitrators much like the fisherman tempts the rainbow trout with the proper lure...' " [Baer:14]. Such a statement suggests that the choice of the arbitrator makes a difference although some do not agree with such a viewpoint (Peterson:747, Killingsworth:44). Nevertheless, many companies and unions keep "box scores" on arbitrators and select them according to their "track record" (Dworkin:200, Peterson:787).

Hennigan appropriately notes, "arbitration and discipline is a dangerous game... especially dangerous for the 'uninformed' and the 'untrained' [Hennigan:52]." Such a situation suggests a more systematic and quantitative approach may offer a potentially more reliable approach than the 'crystal-ball' one Coulson describes.

Previous Research

The standard approach to studying arbitration and how arbitrators decide cases typically involves a case study approach. Following is a brief review of four case study research efforts.

James Gross selected a set of cases dealing with the issue of subcontracting. He concluded a tradeoff was involved between management rights and job protection and that considerations of efficiency carried the greatest weight in the arbitrator's decision (Gross:63).

John E. Tobin selected sets of cases dealing with the issues of employee discharge and absenteeism. The result of his study was essentially two lists of rules for management to follow to insure a strong case for the particular issues of discharge and absenteeism. Tobin, however indicated no weighting scheme in his criteria (Tobin:20-23, 25-31).

Brook I. Landis chose to do a case study on the well known arbitrator Saul Wallen. Landis concluded Wallen's criteria in deciding cases were tradeoffs between efficiency, stability, and equity. Landis categorized the criteria in a sample of 500 Wallen cases broken down by topical subgroups. His method was to indicate whether or not each criterion was present in the conclusions Wallen wrote at the end of each case. This resulted in a table of frequencies for each criterion by topical subgroup (Landis:166).

Donald J. Peterson's case study concerned the ability to predict the outcomes of arbitration cases. In this study seven attorneys specializing in labor and five union representatives predicted the outcomes of 396 arbitration cases. The criteria used in prediction were merit and strength of the union's case, knowledge of the arbitrator's prior decisions on similar issues, and precedent. Overall they were able to classify 66.4 percent of the cases correctly (Peterson:789).

Studies of this kind are important because they give added insight to the many details arbitrators consider in reaching their decisions in specific types of issues like contracting out and discharge. The study of Wallen approaches a systematic and quantitative approach with a frequencies chart. Landis narrows the typical rule lists to three criteria and then uses them in a broad spectrum of cases. Criteria frequency, however, is not a powerful method of determining what relative weights the criteria have in the decision. Such an approach does reinforce the idea that arbitrators do use certain basic criteria consistently. The question that naturally arises is whether all arbitrators use the same basic criteria and if they weight the individual elements differently. To answer such a question a more systematic and quantitative approach is required. The linear model in the policy capturing setting has been shown to be a good approach in similar situations.

The Linear Model and Lambert's Innovations

The idea of using a linear model to capture the decision making policy of a judge or manager is not a new one. In fact models have been built to capture the policies of business managers, graduate admissions committees, auditors, accountants, loan officers, military officers, and literary critics to predict such events as business failures and stock-market performance; to select graduate students; to plan workforce and production schedules; and to evaluate accounting procedures, Air Force cadets, and theatrical plays (Slovic, et al:12). The modeling situations have varied from natural to contrived settings and; overall, the models have done a good job of capturing the decision policies intended.

In a recent thesis effort David Lambert innovatively utilized the linear model in the natural setting to capture the decision making policy of labor arbitrators for the first time. Lambert, personally scoring published labor arbitration cases, built two linear models. The first model captured the policy of random arbitrator case decisions, and the second model captured the policy of Saul Wallen's case decisions. The results indicated the decisions of labor arbitrators can be modeled and their decisions predicted. Approximately 75 percent of the random arbitrator cases and over 90 percent of the Wallen cases were predicted correctly (Lambert:55, 58).

Purpose of the Study

The efforts of Lambert were directed towards fitting the linear model to the arbitrator's decision process thereby establishing the framework for this thesis effort to build upon. The purpose of this study is to test more fully the model Lambert developed and to explore the inherent applications that may be possible in the labor-management setting.

Problem Statement

Can management utilize linear models of arbitrators' policies to aid them in plant management, to include making decisions whether or not to submit to arbitration and, if so, in selecting the arbitrator?

Objectives

Essentially the objectives are twofold. The first objective is to determine the feasibility of labor and management applications using the models in the real world. This first objective is contingent on the second one which is to determine how good (in a predictive power and consistency sense) the model is.

Specific Hypotheses

In exploring the possibility of applying arbitrator decision policy models as an aid in management decision making, the model requires more complete testing and validation. Since Lambert was the only scorer of the

arbitrators cases in his analyses, the question of how transferrable the skill of case scoring is between scorers arises and whether or not the difference, if any, is a significant one. Another application consideration is the question of how much difference there actually is between the decision policies of individual labor arbitrators. The difference in the amount of cases predicted correctly between the random case set and the Wallen case set, 75 percent and 90 percent, suggests policy differences between arbitrators is a possibility. This result, however, may also be due to two experimental design problems. First, the random case set results, initially scored by Lambert, could reflect variability introduced by a learning curve situation involving the case scoring methodology. Second, the Wallen case results, scored subsequently, could reflect an upward bias due to the difference in the presentation of the cases (this issue is expanded on in the methodology chapter).

The experimental design and data analysis in this research effort is, therefore, primarily directed towards testing two hypotheses.

HYPOTHESIS 1 The decision policy models of the same arbitrator differ significantly between case scorers.

HYPOTHESIS 2 Decision policy models differ significantly between arbitrators.

Scope and Limitations

The amount of time necessary to score the number of arbitration cases necessary to build a good model of one arbitrator is considerable. Accordingly, this imposes a possibly severe data limitation on the design of this experiment. Three arbitrator case sets of thirty are compiled for this study. Ideally, each scorer or scoring team would score all three arbitrator case sets which would allow for policy difference comparisons between both scorers and arbitrators. The restricted design is as follows: Each arbitrator case set will be scored by more than one scorer (or scoring team) to allow for between scorer comparisons. The writer will score all three arbitrator case sets to allow for between arbitrator comparisons.

The case sets used in this study are published ones written by the arbitrators themselves. Since published cases represent an extremely small proportion of all labor arbitration cases; it must be assumed that published cases reflect a representative sample of all labor arbitration cases and are representative of the works of each arbitrator chosen for this study.

CHAPTER II

REVIEW OF THE LITERATURE

Direction

The purpose of this chapter is to provide an application oriented insight to the arbitration process; application in the sense of where and how the decision policy models of arbitrators would fit in the present approach towards preparing for and going to arbitration. Since the United States Department of Labor survey statistics from 1966 indicate that over four-fifths of the collective bargaining agreements provided for selection of the arbitrator on an ad hoc basis (Elkouri and Elkouri:68), and both Coulson and Glasser indicate the trend is towards single arbitrators chosen on an ad hoc basis (Coulson:30, Glasser:974); the literature review accordingly centers around the ad hoc approach to the arbitration process.

The chapter is divided into four sections. The first section is an overview of the arbitration process and briefly discusses how the system works and the purposes that are served. The second section takes a look at the costs involved in arbitration. The third section discusses the arbitrators, who they are, how they are selected, and why they are selected. The fourth section reviews and comments on the criteria arbitrators consider in making their decisions.

Arbitration: An Overview

Arbitration plays a crucial role in resolving conflict between labor unions and management. In the work environment disputes and disagreements are virtually unavoidable; so as means of settling the conflict that arises, formalized grievance procedures are established and are included in bargaining agreements. Not all grievance procedures are the same but all have the same objective; to reach a peaceful settlement.

The grievance procedure is divided into progressive stages or steps. The process begins when a formal complaint or grievance is filed by an employee or group of employees. Settlement is attempted first at an informal level which usually involves the union steward and the supervisors. Usually the dispute is settled at the first level. However, if a settlement is not reached, the dispute moves up the organizational hierarchies of union and management and is brought before the union committee and the plant superintendent for settlement. Unresolved disputes continue to progress through the procedure becoming more formalized at each step. The last step involves top management and union officials. If the dispute still remains unsettled, the contractual provision for arbitration by a neutral third party is utilized (Schoen and Hilgert:189-190).

Arbitration is the final means of solving a dispute and is best used after all other methods of settlement have

failed. Once arbitration is agreed to, the final disposition of the complaint rests with the arbitrator. The union and management present their case to the arbitrator who renders his decision which is final and enforceable.

Arbitration is an important and valuable means of settling conflict with fair, equitable, and just solutions. Arbitration serves three basic purposes. First, arbitration is a substitute for litigation. The time and expense of trying to settle the dispute in the overloaded court system makes arbitration appealing. Second, arbitration is a means of averting economic confrontations between the parties. Strikes are a good example of using economic power to settle a dispute. If every grievance resulted in a strike it would be virtually impossible for any company to continue to operate. Third arbitration is a method that provides a final and binding solution to otherwise unresolved disputes (Baer:2, 3).

Arbitration is not a cure-all and the literature stresses using arbitration carefully and as a last resort. The reasoning is that Unions and Management by striving to develop good bargaining skills will build a strong relationship; therefore, arbitration will be used not as a substitute for collective bargaining but rather to aid it when an unresolvable dispute arises. Arbitration used in such a manner benefits both parties.

The Cost of Arbitration

The use of arbitration as a final means of settling disputes is not achieved without cost. The costs of arbitration are significant and can be divided into two categories: The cost of holding an arbitration hearing and the subsequent costs related to the arbitrator's award.

Arbitration Hearing Costs

The total cost of holding an arbitration hearing varies widely depending on the choice of an arbitrator and the elaboration involved in processing the case.

The cost of an arbitrator is a function of his experience and expertise. Experienced arbitrators are in great demand and thus command a higher rate. The requirement of special areas of expertise are also likely to increase the cost of obtaining a qualified arbitrator. Discharge cases, for example would not require the expertise that would be necessary to decide a complicated subcontracting issue (Fleming:31). The costs of the arbitrator, both fees and travel expenses, are normally shared equally by the parties. The Federal Mediation and Conciliation Service reports that the average total cost for an arbitrator to hear a case in 1978 was \$830.54 (see Table 2.1 for a detailed break-out of expenses). The cost of the arbitrator represents only a portion of the total expense involved.

TABLE 2.1
AVERAGE PER DIEM RATES,
FEES AND EXPENSES CHARGED BY ARBITRATORS

	1975	1976	1977	1978
Arbitrators' per diem rates, fees and expenses charged	Dollar amount	Dollar amount	Dollar amount	Dollar amount
Per diem rate	\$192.30	\$202.37	\$216.99	\$239.05
Total charged	621.31	662.39	733.04	830.54
Amount of fee	550.81	581.72	644.70	735.53
Amount of expenses	70.50	80.67	88.34	95.00
(Federal Mediation and Conciliation Service:43)				

Other costs that may be incurred include counsel, stenography, copies of the decision, service agency fee, and conference room rental. The preparation time necessary for union and company representative also must be considered and these costs often entail the use of lawyers' time. Sometimes contract clauses provide pay reimbursement for time lost by union officers or committeemen that must attend the arbitration hearing (Coulson:36).

The AFL-CIO Department of Research estimated in 1975 the total cost to the union for a typical arbitration case to be \$2,220 (see Table 2.2 for a detailed breakout of expenses). The figures Fleming reports from 1963 indicate company lawyers fees are higher than union lawyers on the average and that the

TABLE 2.2

THE UNION'S COST OF TRADITIONAL
ARBITRATION FOR A ONE-DAY HEARING

Prehearing	
Lost time: Grievant and witnesses @ \$/32 hour . . .	\$160
Lawyer:	
Library research @ \$40/4 hours	160
Interviewing witnesses @ \$55/4 hours	220
Filing fee: AAA (shared equally) \$100	50
Total prehearing costs	<u>\$590</u>
Hearing expense	
Arbitrator:	
Fee (shared equally) 1 hearing day	\$100
Expense for meals, transportation, and so on (shared equally)	50
Travel time one-half day (shared equally) . . .	50
Total arbitrator	<u>\$200</u>
Transcript: \$2.75 per page with two copies and ten-day delivery of 200 pages (shared equally)	
	\$325
Lawyer: Presentation of case @ \$55/hour	330
Lost time: Grievant and witnesses @ \$5/hour, 32 hrs	160
Hearing room: Shared equally (Free under AAA) . . .	25
Total Hearing	<u>\$840</u>
Posthearing Expense	
Arbitrator: 1 1/2 days study time (shared equally)	\$150
Lawyer: Preparation of post-hearing @ \$55/hour	440
Total cost to union	<u>\$2,220</u>

(Zalusky:2-3)

total lawyers bill is twice as large (Fleming:50). If this is still the case, the company would be expected to incur costs considerably greater than \$2,200.

The time and monetary costs of arbitration are significant; however, Peter Veglahn's Survey of companies and

unions in New York indicates the majority feeling is that the costs and time are not a serious concern (Veglahn:49). This is most likely because the serious concern surrounding arbitration lies in the award and in many cases that is where the real cost becomes apparent as noted by R. W. Fleming. There are cases which touch extremely sensitive management nerves. In those cases the risk of loss must be minimized and cost is of minor importance to the company (Fleming:35).

Award Related Costs

Since arbitrators decisions are binding and enforceable, the awards they render can be costly for management. "Francis A. O'Connell, director of Industrial Relations for Olin Mathieson Chemical Corporation believes that arbitration is a dangerous game, because it's the union's most successful means of invading the right to manage [Hennigan:52]." The normal case situation as described by R. W. Fleming expands somewhat on O'Connell's comments.

In the normal case the company retains the initiative while the union can complain that the action which the company has taken is in violation of the contract. If the company prevails in the arbitration its right to do what has already been done will simply be sustained. Thus there is some encouragement to the union to challenge company actions which it has only a small chance of upsetting. If the union should be successful in the arbitration it may have gained a substantial advantage while if it loses it will be no worse off than it was before [Fleming:35].

The company definitely has something at stake, for arbitrating with a weak case and losing could mean the setting

of a precedent. Another costly outcome is when "management wins the arbitration battle but loses the war." Arbitrator suggestions can often allow the union to improve on the contract, this is especially the case when the contract is silent on the dispute in question (Hennigan:52).

The "hollow victory" is another situation management must watch out for. This happens when employee response to the decision outweighs the benefits. For example, going to arbitration may not be the best policy if such action is likely to embarrass or embitter a shop chairman or union business agent (Levin:221).

When it comes to arbitration the company's position on the issue must be of vital significance. If company experts determine there is a good chance of winning, the decision to arbitrate is the proper avenue (Levin:221). Levin, however, voices an exception to this policy.

Arbitration should not necessarily be avoided even when management feels victory is improbable. A dispute arbitrated and lost can sometimes do management more good than knuckling-under without resorting to the last recourse. In plants where management has been lax in enforcing standards of production and performance and discipline and has never challenged the union's say-so, one of the best ways to signal a return to responsible and efficient company labor relations policy is to insist on arbitration of an issue that involves principle. As a shop steward once said of a company that followed this policy: 'When they stopped playing dead and insisted on arbitration, we knew they meant business again [Levin:226]'.

Fleming also brings up a good point concerning the balance of arbitrators' decisions between the union and management.

A sophisticated management knows... it cannot win all the cases and expect the system to remain acceptable to the union rank-and-file. ... how many cases must it lose if the system is to remain viable, and to what extent can it choose the cases it expects to lose [Fleming:205].

It is apparent management must look closely at the possible consequences of letting the arbitrator decide the specific issue they have at hand. Letting the arbitrator reinstate a grievant with full back pay is one cost, but losing specific management rights is a cost of a different kind. And, as has been noted, winning the case is no guarantee of retaining management rights. There is also the consideration that if management wins too often, the acceptability of the system is threatened. This suggests careful screening of grievances is necessary to keep management in the optimal position to run the plant and maintain an acceptable means of final grievance resolution.

Selecting the Arbitrator

Contract Provisions

Once a decision is made to go to arbitration the next step is for the union and management to select an arbitrator. The contract language in the bargaining agreement specifies the procedure to be followed. There is no one "right" way to select an arbitrator and, in fact, many

selection methods exist. The selection methods following represent four of the more popular ones.

Mutual agreement between the union and management is one way of selecting an arbitrator (Trotta:37). This method provides a simple way to select an arbitrator provided the parties are able to agree on an arbitrator, and unfortunately, in many cases this is not what happens.

The American Arbitration Association (AAA) or the Federal Mediation and Conciliation Service (FMCS) can be called upon to provide an arbitrator (Murphy:185). The weakness of this method is that neither party can exert any influence on the selection process, but some parties might argue that is exactly why it is desirable.

The ranking or rating selection method has each party independently rank each arbitrator on a list supplied by AAA or FMCS. For example, if the list contained five arbitrators, they would be ranked from lowest, one, to highest, five, using the whole numbers one to five only once. Each arbitrator's score is totaled and the highest ranking arbitrator is selected (Trotta:37). The one problem with this procedure is that a provision is necessary for breaking ties.

Direct elimination, sometimes referred to as striking or scratching, is a popular method of arbitrator selection. A list of an odd number of arbitrators is

obtained from AAA or FMCS and the parties take turns striking names off the list until one name remains (Murphy:185, Trotta:37). The contract should specify which party strikes first because it makes a difference. The party striking second will always have the advantage of being able to choose between the last two unstruck arbitrators on the list, whereas, the party striking first can only narrow the field with each strike.

A properly written arbitration clause will allow conflict free selection of an arbitrator, and the different selection methods allow the parties to exercise varying amounts of influence on which arbitrator will be selected. This may be of importance if the parties have preferences; the arbitration literature indicates this is the case and that selection of the arbitrator is a crucial part of the process (Baer:14, Coulson:24, Dworkin:200, Labor Relations Yearbook-1975:145, Murphy:183, Primeaux and Brannen:27, and Smardon:82). Two of the more notable comments which relate to selection are from Raymond A. Smardon and Walter E. Baer, respectively.

Arbitrators show personal prejudice, or at least patterns in their decisions. Some are soft on money, some on discipline-each has his own characteristics. Thus, logically, without fraud of any sort, the outcome on any issue often can be accurately predicted as soon as one knows who the arbitrator will be [Smardon:82].

There is some divergent arbitral opinion about such matters as subcontracting, discipline and discharge management rights, past practice, work

rules, violations of no strike pledges and others. Although there are many settled well established concepts endorsed by the majority of arbitrators there are other areas where some difference of opinion persists, even among the best known, most reputable neutrals. Once this is realized, additional reasons, which are perhaps more important than those already cited, emerge for researching a prospective arbitrator [Baer:45].

Robert Coulson aptly notes "No part in the arbitration clause is more important than how the arbitrator will be selected [Coulson:30]."

Information Sources

When the union and management are faced with a choice between arbitrators they often want to know more about them. The parties rely on three basic types of sources for their information: Biographies of the arbitrators, comments from parties who have used these arbitrators in the past, and opinions and awards of past cases written up by the arbitrators themselves.

Arbitrators' biographies are available from both the AAA and FMCS, and the Labor Arbitration Reports and Labor Arbitration Awards have biographies of the arbitrators in the back of each volume.

The AAA will provide evaluations of the arbitrators' past performance by the parties who have utilized their services. Coulson points out that several commercial services that serve management report the opinions of employers and their counsel who have used a particular

arbitrator on prior cases, and he also notes management groups maintain clearing houses of information on arbitrators (Coulson:35).

Opinions and awards of past arbitration cases written by the arbitrators themselves are available from a wide variety of sources. Published cases represent about 4 percent of all arbitration cases. Two of the most common case sources are the Labor Arbitration Reports and Labor Arbitration Awards which are also the source of cases for this study. The three AAA publications "Summary of Labor Arbitration Awards in the Private Sector," "Labor Arbitration in Government," and "Labor Arbitration in Schools" represent alternative sources. The AAA will supply full texts of opinions of their arbitrators, and it appears the computerized arbitration information system run by the FMCS provides similar services. Some states also require the decision to be filed in the office of the clerk of court having jurisdiction in the county of the parties (Labor Law Course:4253). It is apparent there are still other means of obtaining arbitration cases other than published ones because parties often have case decisions reproduced and made available to key personnel and it is likely that distribution networks exist.

Selection Criteria

In the literature various criteria or guidelines are revealed to aid one in selecting the "right" arbitrator.

These guidelines suggested can essentially be grouped into five basic criteria for evaluating and selecting an arbitrator: Integrity and impartiality, experience and tools, background, analytical ability, and philosophy.

A good arbitrator must necessarily be impartial and his integrity of the highest standards. These qualities are reflected by an objective, fair, and honest approach in conjunction with mature judgment. Parties who have used the arbitrator of interest in the past are normally a good reference. A word of caution is in order though: Losers comments should be evaluated carefully and with knowledge of the case in question at hand.

One qualification that parties consider extremely important is experience. In fact, the importance of experience is so emphasized that it has created a problem of getting new arbitrators in the mainstream to meet the rising demand. Experience is but one of the tools of an arbitrator that are considered. Others include education, technical background, membership in professional groups such as the National Academy of Arbitrators and the panels of FMCS and AAA, and specialized knowledge of the subject. Since no legal training is necessary to be an arbitrator (Coulson:35), it becomes important to assess these other tools to insure the arbitrator chosen will have the qualification necessary to understand and intelligently evaluate the case. Published biographies are the major source of this type of information.

The social and economic background of the arbitrator is often taken into consideration but is not given much weight in the selection decision.

The arbitrators analytical ability is crucial and such ability is revealed in his awards. Frequent splitting of decisions reflect the arbitrator's incompetence and inability to reach a decision (Labor Relations Yearbook-1975:145). An arbitrator who renders a clear cut award is generally preferred to one who is a compromiser (Trotta:103). Most important, the arbitrator must meet the issues presented to him and this may not be revealed by his award alone (Labor Relations Yearbook-1975:145).

The last criterion used in selecting an arbitrator is his philosophy or his decision making criteria. The arbitrator's rational and style are important and is often revealed in the discussion or opinion preceding his award in a published case. Important questions to answer are ones like: Is the arbitrator too legalistic, is he soft on discharge cases, and does he believe or recognize management's right to run the plant (Coulson:34, Murphy:185). The arbitrator's philosophy is taken into consideration along with the particular situation at hand in deciding how much weight it will be given in the selection process.

The criteria presently being used, or at least recommended to select an arbitrator vary considerably, are

extremely subjective in nature, and represent more of a "gut feel" approach than anything else. This study attempts to develop a systematic approach to evaluation that is not as subjective and allows for more reliable comparison.

Arbitrators Decision Criteria

The criteria arbitrators use in deciding cases is an intriguing issue and various case studies in the literature have approached it in different fashions. Some researchers have studied issues such as subcontracting (Gross:55-72) and discharge (Tobin:20-23), others have attempted to determine if prior awards influence arbitrators decisions (Jennings and Martin:95-106), and one study looked at the works of the arbitrator Saul Wallen (Landis). Gross and Landis both assert arbitrators use some criteria to make their decisions and that they are influenced by their personal values.

With respect to the conclusions that can be drawn about the arbitration process in general, it becomes clear from Wallen's example that (1) competent arbitrators can allow certain personal values to influence their decision making and still remain generally acceptable as an arbitrator; (2) concerns for efficiency, industrial relations stability, and equity for all affected individuals are among these values; and (3) arbitrators can play a large role in influencing the parties' future behavior through the creative and assertive use of remedy powers [Landis:167].

Consciously or unconsciously, arbitrators bring these ideas about ethics, man, law, private property economics, and so forth to their cases. Although

he might be unaware of the existence of such a frame of reference, the values held by the arbitrator subtly influence his selection and organization of what he decides are relevant data, his emphasis of certain evidence and de-emphasis of other, his acceptance of a certain procedural method, his attitude toward prior arbitration awards, and his literal or broad reading of the contract [Gross:55].

It seems reasonable that the basic and more important criteria can be defined to some extent although individual arbitrators' interpretations of the criteria as well as the relative weight they give them in the decision process may differ. The primary goal of the grievance or "rights" arbitrator is to determine and carry out the mutual intent of the parties (Elkouri and Elkouri:320) and in doing this some of the criteria an arbitrator uses are contract language, past practice, bargaining history, management rights, effect on the bargaining unit, fairness, and prior awards. Each of these criteria are discussed in turn.

Contract Language

The arbitrator, of course, is a creature of the contract. In most cases, he must rely on contract clauses that have at least a tenuous relationship to the issue before him [Stein:270].

The contract must necessarily be an important consideration in arbitrators' decision processes if they are to uphold the validity and binding nature a bargaining agreement should have which is probably why Levin states "The contract is the first line of defense [Levin:230]."

Usually when a grievant or grievants file a grievance they claim management has violated the collective bargaining agreement; therefore, "the arbitrators task is to determine what the words of the contract mean to those who used them, realizing that the process of reducing their agreement to writing may have introduced a distortion or change in the original meaning [Ferris:224]." So for the arbitrator to determine if the contract has been violated he must first read and interpret what the contract has to say about the specific issue in question. If the language is clear and unambiguous the arbitrator's decision may be based solely on the contract language. Landis asserts that Wallen's awards reveal he was able to find a "sufficiently clear and unmistakable answer in the contract language itself about 10 to 25 percent of the time [Landis:72]."

More often than not, however, the language is not sufficiently clear but ambiguous, contradictory, or totally silent on the issue. When this situation arises the arbitrator must depart from the contract and use other criteria in determining the intent of the parties. Two criteria arbitrators frequently use to clarify the contract are past practice and bargaining history.

Past Practice

Often past practices or customs that have become part of the work environment between the union and management are not included in the written agreement or a short clause is added stating that past practices will be allowed to continue throughout the period of the bargaining agreement. The arbitrator is faced with the problem of determining what constitutes a binding past practice.

A binding past practice is characterized by mutuality in practice, is accepted by both parties, and is reasonable in consideration of the present plant situation (Prasow and Peters:94). Binding past practices are known due to frequency and consistent and uniform application which are not the result of unilateral actions by union or management (Ferris:226). Past practice is an important part of the working relationship between the union and management and aids as a stabilizing influence; however, past practices also need to be flexible and reasonable to allow management to meet the needs of a changing environment. It is precisely this tradeoff than is often considered by the arbitrator when looking at past practices.

Bargaining History

The bargaining history of the parties can sometimes clarify the language of the contract and reveal the parties original intent when the contract was drawn

up. The discussions of negotiators and other actions and events can give meaning to the contract language (Prasow and Peters:122, Woolf:73), and a change of language in a particular clause may indicate a change in the parties intent (Ferris:228). Bruno Stein, an arbitrator, indicates that only on occasions the arbitrator is given the opportunity to examine the history of the agreement to interpret the meaning of the dispute clause in question (Stein:270).

Both past practice and bargaining history are additional criteria arbitrators use in an attempt to clarify and give meaning to the contract language but often these are not enough and the arbitrator must look elsewhere and consider other criteria such as management rights, effect on the bargaining unit, and fairness.

Management Rights

Management rights represent the right of management to manage the plant; direct the work force; hire, suspend, discipline, discharge, transfer, layoff, and relieve workers, and to promote operating changes necessitated by efficiency and economy (Elkouri and Elkouri: 433). In a nutshell Prasow and Peters have described the essence of the concept behind management rights:

Management must have the ultimate power to operate the business, to manage, a right recognized not only by arbitrators but by most union members and their leaders [Prasow and Peters: 31].

The real problem is defining how extensive and far reaching is management's "ultimate power to operate." The reserved or residual rights theory states managements' power and authority is limited only to the extent that they have signed it away in the collective agreement or are restricted by law (Elkouri and Elkouri:433, Prasow and Peters:31). Arbitrator Bruno Stein notes that arbitrators have come to accept a modified residual rights theory such that:

1. Management perogatives be exercised in a reasonable and rational form.
2. The intent of an action be not to subvert the letter or spirit of the agreement.
3. Long established practices are not easily discouraged (Stein:271, 272).

Stein also points out this theory has weight even in the absence of specific contract language (Stein:277).

Efficiency plays a large role in the rights of management especially in major management decisions such as subcontracting. Gross, in his study of subcontracting type cases concluded the arbitrators' decisions involved tradeoffs between efficiency and the loss of jobs or effect on the bargaining unit. Gross explains the distinctive difference between efficiency and economy. A management argument that reflects purely economy considerations, cost savings as the result of lower wages for example, will

not stand up alone. Management must also show the action taken reflects efficiency, the subcontractor has technologically superior equipment and a different process that allow them to produce at considerable cost savings for example, in order to justify their actions (Gross:63).

One test or rule suggested in determining management's right to manage is the major/minor rule. In brief form "major conditions of employment not referenced in the contract must remain as they were. Where the employee benefit is minor, the function is considered a part of management's basic right to manage [Woolf:72]." The problem with this rule is in determining what is major and what is minor. Arbitrators Wallen and Miltenthal object to this criteria because it allows too much discretion (Prasow and Peters:81). This rule is useful only if a clear dividing line can be drawn between major and minor, what management can do and what they cannot do, which essentially brings the argument back to the modified residual rights theory.

There is little doubt that management rights are considered by arbitrators in reaching their decisions and it is likely individual arbitrators view management rights differently which may be enough to make the difference on some issues.

Effect on the Bargaining Unit

Effect on the bargaining unit represents the impact felt from the exercise of management rights on some decision. The effects will be greater as a result of a management decision to subcontract than a management decision to discharge a worker due to the total effect on the bargaining unit which in the case of subcontracting could result in a large number of workers losing jobs. Gross suggests arbitrators in subcontracting situations consider whether management was acting in good faith with pure efficiency motives or if their actions was unreasonable, arbitrary, discriminatory or intended to harm, prejudice or undermine the union. The arbitrator also considers whether the number of jobs lost substantial (Gross:62, 63).

Fairness

Fairness reflects how management went about doing whatever it was that resulted in the grievance. Fairness is often the major issue present in discharge and discipline cases which constitute roughly 40 percent of all arbitration cases (see Table 2.3), though the issue of fairness is not related to those types of cases alone. "Just cause" is the usual contractual requirement behind discharging or disciplining a worker and often a value judgment is required by the arbitrator in ascertaining whether "just cause" has been established.

TABLE 2.3

NUMBER AND PERCENT CHANGE IN NUMBER
OF ISSUES REPORTED IN APPLICABLE FMCS
CLOSED ARBITRATION AWARD CASES FOR
FISCAL YEARS 1975 THROUGH 1978

	1975	1976	1977	1978
Specific issues	Total number of issues	Total number of issues	Total number of issues	Total number of issues
Total	<u>5,243</u>	<u>6,855</u>	<u>6,935</u>	<u>8,155</u>
GENERAL ISSUES	<u>1,347</u>	<u>2,170</u>	<u>1,922</u>	<u>2,108</u>
Overtime other than pay*				
Distribution of over-				
time	198	197	183	217
Compulsory overtime . .	25	20	31	43
Other	26	36	29	46
Seniority				
Promotion and up-				
grading	260	246	253	282
Layoff, bumping and				
recall	234	481	320	316
Transfer	94	117	96	110
Other	103	125	102	110
Union officers**	20	32	24	36
Strike and lockout . . .	18	18	33	12
Working conditions*** .	45	56	54	82
Discrimination	48	65	56	58
Management rights . . .	115	167	201	196
Scheduling of work . . .	161	158	137	155
Work assignments	---	452	403	445
ECONOMIC: WAGE RATES &				
PAY ISSUES	<u>729</u>	<u>912</u>	<u>922</u>	<u>1,026</u>
Wage issues	53	92	86	105
Rate of pay	107	190	176	117
Severance pay	11	10	19	16
Reporting, call-in and				
call-back pay	92	109	82	131
Holidays and holiday pay	101	152	127	172
Vacations and vacation				
pay	108	104	150	151
Incentive rates or				
standards	58	78	93	60

TABLE 2.3--CONTINUED

	1975	1976	1977	1978
Specific issues	Total number of issues	Total number of issues	Total number of issues	Total number of issues
Overtime pay	199	177	139	214
FRINGE BENEFIT ISSUES	<u>164</u>	<u>207</u>	<u>219</u>	<u>235</u>
Health and welfare	66	82	81	107
Pensions	21	22	25	22
Other	77	103	113	106
DISCHARGE & DISCIPLINARY ISSUES	<u>1,812</u>	<u>2,150</u>	<u>2,520</u>	<u>3,181</u>
TECHNICAL ISSUES	<u>260</u>	<u>364</u>	<u>395</u>	<u>434</u>
Job posting and binding	56	186	112	125
Job evaluation	204	90	98	102
Job classification	---	188	195	207
SCOPE OF AGREEMENT	<u>202</u>	<u>221</u>	<u>197</u>	<u>213</u>
Subcontracting	104	109	109	116
Jurisdictional disputes	33	45	51	41
Foreman, supervision, etc	57	58	32	49
Mergers, consolidations, accretion other plants	8	9	5	7
ARBITRABILITY OF GREIVANCES	<u>497</u>	<u>608</u>	<u>545</u>	<u>697</u>
Procedural	235	310	311	368
Substantive	140	151	115	164
Procedural and substan- tive	90	92	50	86
Other	32	55	69	79
NOT ELSEWHERE CLASSIFIED	<u>232</u>	<u>223</u>	<u>215</u>	<u>261</u>

*Overtime pay issues included under category Economic:
Wage Rates and Pay issues.

**Included in this classification are issues concerning
superseniority and union business.

***This classification also includes issues concerning
safety.

(Federal Mediation and Conciliation Service:46-47)

In making these value judgments arbitrators consider whether management's action was capricious, arbitrary, or discriminatory in reaching their decision (Woolf:72). Management's action though should not necessarily be uniform but it should be consistent. The arbitrator also considers the employee's seniority and work record in determining if the punishment fits the offense in discharge and discipline case (Tobin:20-24). The considerations mentioned here only touch the surface of defining fairness which is broad in meaning and in scope. The literature does indicate these details may have merit in the eyes of the arbitrator and, therefore, have been considered under the heading of fairness.

Prior Awards

The precedent value of prior awards is questionable and Jennings concludes after studying arbitration cases involving prior awards that:

The vast majority of the cases, however, suggest that prior arbitration awards have no significant association with current arbitration awards; also arbitrators' decisions tend to either ignore or refute prior arbitration awards presented by management and union officials [Jennings and Martin:105].

One of the problems here is that citations of other published awards are supposed to be identical or similar to the case at hand, and close examination often reveals they are dissimilar or unrelated (Baer:128). For these

reasons prior awards are questionable as far as whether arbitration consider them and probably should not be relied on.

A Recap

The literature suggests the decision criteria used by arbitrators include: Contract language, past practice, negotiating history, management rights, effect on the bargaining unit, and fairness. Prior arbitration awards was considered questionable. Due to the fact that arbitration covers such a wide spectrum when it comes to the types of the disputes that arise (see Table 2.3), it is likely that the arbitrators will not use all of the criteria in every case but that many cases will involve tradeoffs between some of these criteria while others may go unconsidered.

CHAPTER III

METHODOLOGY

The purpose behind the design of this experiment and accompanying data analysis is to test more fully the arbitrator policy capturing model Lambert developed in order to see if such policy models are feasible for management application. The first section develops the arbitration scenario and defines the resulting policy capturing model. The second section explains the data collection methodology while laying out the experimental design. The third section introduces some initial results and an unanticipated problem. A modified model is presented to address the problem. The fourth section explains the final experimental design in relation to the two models and the data to be collected. The last section presents the data analysis techniques that will be used.

The Modeling Scenario

This section explains the linear modeling procedure as it is applied in the arbitration setting. Figure 3.1 presents a graphic view of the arbitration scenario and Figure 3.2, the arbitrator policy capturing model as developed

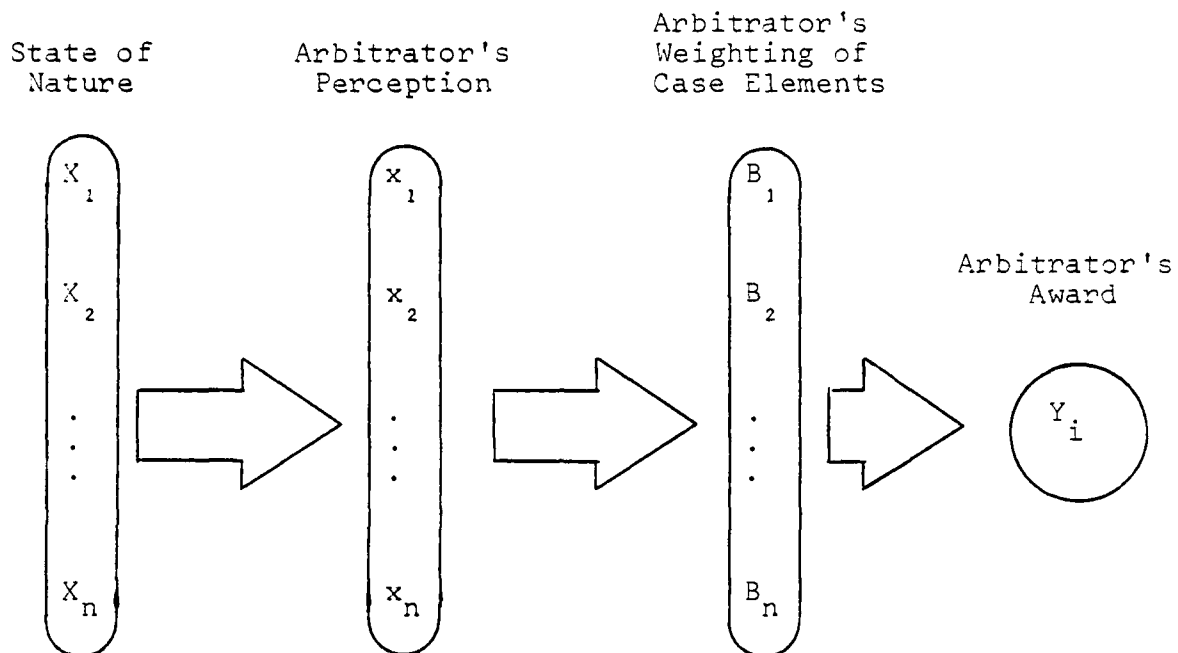


Fig. 3.1 Arbitration Case Scenario

by Lambert. Both figures should be examined to clarify this presentation.

Initially some sequence of events take place which lead to a grievance and later to arbitration. This sequence of events is what actually happened and X_1, X_2, \dots, X_n represent this true state of nature. The arbitrator at the hearing must be informed of what has happened and this is done when the union and management present their sides of the case, this of course, may not reflect exactly what happened; the information as the arbitrator perceives it will also be influenced by his own research information and his value system; x_1, x_2, \dots, x_n represents the arbitrator's perception of the case. The arbitrator then

considers, evaluates, and ultimately weighs these elements or cues in some manner in his assessment of what actually happened and what the remedy should be; B_1, B_2, \dots, B_n represent the respective weights the arbitrator gave these cues in reaching his decision, Y_i . Exactly how the arbitrator combined and weighted the cues is unknown, so the linear model is used in an attempt to quantify these weights and thus capture the arbitrator's policy (see Figure 3.1).

The data for such a modeling exercise is derived from published cases written by the arbitrators themselves. Arbitrators usually present a written case in three parts (see Figure 3.2). The first part of the case is a presentation of the basic facts of the case as deemed important by the arbitrator. This section usually contains the union's and management's arguments; these facts are represented by $\hat{X}_1, \hat{X}_2, \dots, \hat{X}_n$. The second part of the case is the arbitrator's discussion and interpretation of important cues used in explaining and justifying his award; these cues are represented by $\hat{X}_{s_1}, \hat{X}_{s_2}, \dots, \hat{X}_{s_3}$. The third part of the case is the award represented by Y_i .

Lambert's approach was to assess and quantify or score the facts and party arguments, \hat{X}_i 's, in each case using an integer scale from +2 to -2. The awards were coded +1 for a management win, 0 for a split decision, and -1 for a union win. The linear model is then built using Y as the dependent variable and the quantified \hat{X}_i 's,

Published Case

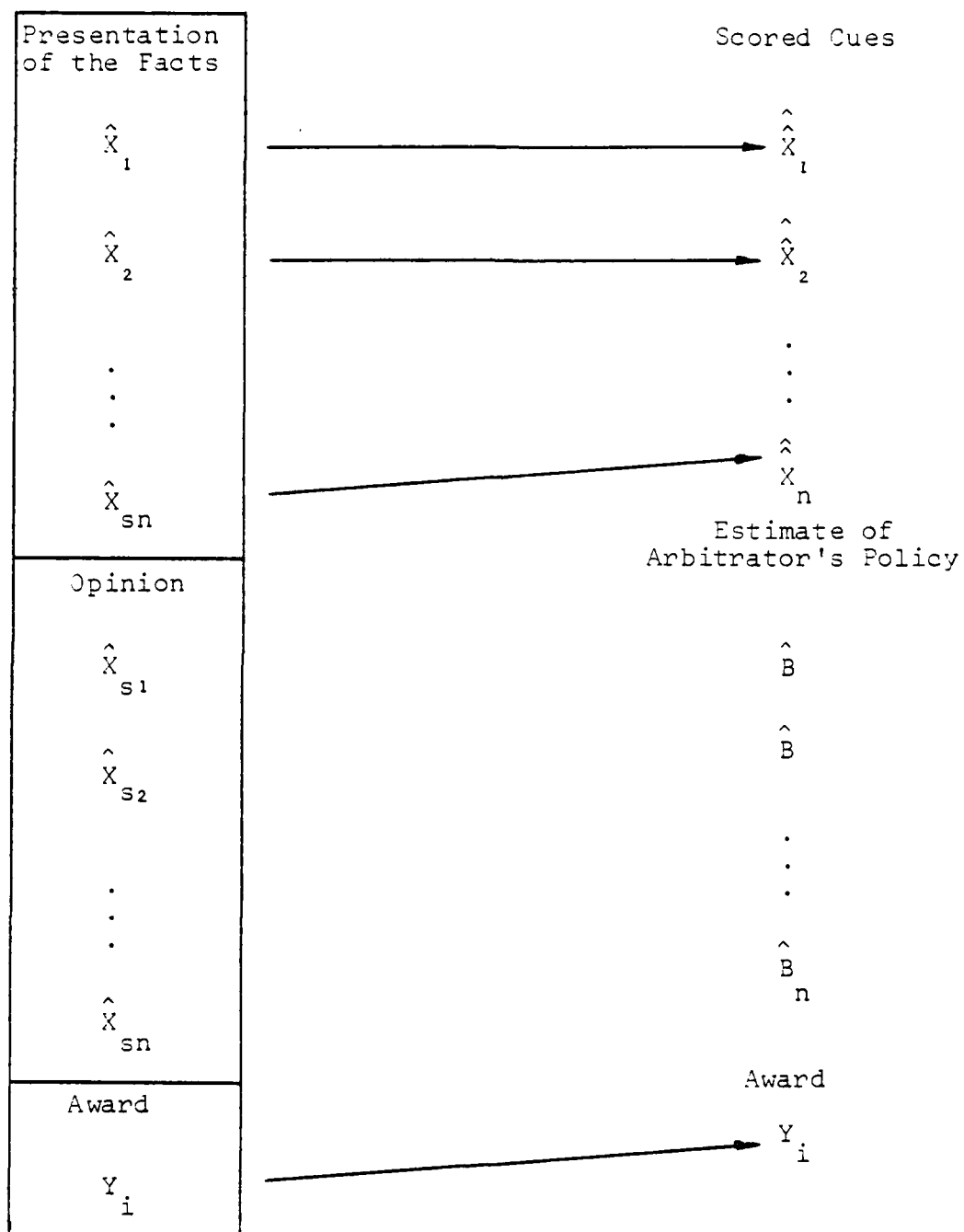


Fig. 3.2 Arbitrator Policy Capturing Model

represented by $\hat{X}_1, \hat{X}_2, \dots, \hat{X}_n$; as the independent variables. The resulting equation

$$\hat{Y} = \hat{B}_0 + \hat{B}_1 \hat{X}_1 + \hat{B}_2 \hat{X}_2 + \dots + \hat{B}_n \hat{X}_n$$

has coefficients, $\hat{B}_1, \hat{B}_2, \dots, \hat{B}_n$ representing the estimates of the weights the arbitrator gives the various cues; \hat{B}_0 is the constant term.

The linear model as it is presented here has the potential to be used for prediction. This is because only the facts as presented by the arbitrator are scored in the cases to build the model. In the application situation labor or management would have a case waiting for arbitration. By using the classification functions derived in discriminant analyses of past case sets of potential arbitrators, the award for each arbitrator could be predicted after scoring the case at hand. This would indicate how that particular arbitrator would have decided the case in question given the model is a good one. For this reason the opinion and award sections are not used when scoring the cases.

Data Collection Methodology

The sets for this analysis are derived by having graduate students read the actual published labor arbitration cases and systematically score each case using five designated cues as criteria. The actual case

decisions along with the case scores are then analyzed using regression and discriminant technique to build the models.

Cases

Three arbitration case sets were compiled using published cases extracted from the Labor Arbitration Reports and CCH Labor Arbitration Awards. Three arbitrators were selected for the case sets according to specific criteria. First, the arbitrator had to have published at least thirty cases so that the sample size would be adequate for statistical analysis. Second, no arbitrators whose published cases were almost exclusively for one company were chosen because this was not felt to be representative of general ad hoc selection practices. Third, cases are limited to grievance issues, Company vs. Union, because they represent the majority of arbitration cases, so interest arbitration cases to decide contract language were accordingly deleted as were jurisdictional disputes, Union vs. Union. Fourth, the question of arbitrability of grievances arises occasionally. Such cases were dealt with as follows: If the arbitrator found the case arbitrable it was included but was not scored on the issue of arbitrability but on the grievance itself. Last, arbitrators with the most recent time span covered between cases were selected so that the results would represent current decision policies.

The thirty most recent cases from each of the following arbitrators were selected: Charles F. Ipavec

(1977-1979), John F. Sembower (1976-1979), and Ralph Roger Williams (1970-1979). See Appendix D for the lists of the cases selected.

Lambert discussed the possibility of an upward bias as a result of scoring the Wallen cases directly from the Labor Arbitration Reports (Lambert:46). To eliminate this problem the cases were edited. The award description at the beginning of each case and the discussion or opinion section at the end of each case along with the actual award were eliminated. Thus, as a result, the evaluator reading the case would have no knowledge of the decision which might bias scoring the cues. With the exception of these deletions the cases remain in the same published format.

It is assumed that any facts mentioned in the deleted opinion section at the end of each case had already been included earlier. It is also assumed that arbitrators report all the important facts and party positions surrounding the disputes in their cases and that the cases reported and ultimately selected for publication are a representative sample of each arbitrator's work and all labor arbitration cases in general.

Cues

A rescoring of the random arbitrator cases from Cases in Collective Bargaining and Industrial Relations:

A Decisional Approach (Schoen and Hilgert:200-360)

indicated a five cue model would be appropriate. The five cues selected are:

1. Management Rights and Efficiency
2. Contract Language
3. Past Practice
4. Fairness and Procedure
5. Effect on the Worker

The cues "prior awards" and "negotiating history" are not included because they were present in relatively few cases.

Scorers

The case scorers for part of this study were seventeen graduate students in management at the Air Force Institute of Technology enrolled in a Federal and industrial Labor Relations course. The case scoring exercise was a course requirement for the section of the course concerning arbitration and represented forty percent of the students grade in the course. The class was divided up into seven teams of two students and three individual student teams. There was a three hour seminar on arbitration and, subsequently, they scored the thirty case set of one arbitrator (see Table 3.1). Due to the time constraint involved in scoring the cases, it was not possible to have the students score more than one arbitrator

TABLE 3.1
SCORING TEAM-CASE SET LAYOUT

Arbitrator		
Ipavec	Sembower	Williams
**	**	*
**	**	*
**	**	*

**--Case set scored by two student team
*--Case set scored by one student

case set. This part of the design is therefore restricted to evaluating differences between scoring policies in students but not between arbitrators.

In order to test for differences between individual arbitrator policies, the same scorer must score the different arbitrator case sets for a meaningful comparison to be made. Scoring ninety cases represents a considerable time commitment; therefore, the writer of this study was the scorer for this part of the design.

Case Scoring Method

The students were given an oral presentation along with a written study guide to aid in scoring the cases. Cases are scored by reading the case, determining which cues are present, and then appropriately scoring the cues. The scale used for scoring ranges from +2, very strong management, to -2, very strong union. A zero indicates the

cue is not present or that management and union arguments counter balance. Only integer values are used in scoring so the resulting scale has five points: +2, +1, 0, -1, -2. Some cues will have a restricted range due to their nature. For example, Management Rights scores will range from zero to +2 because if the cue is present it is always a management argument, if not, the cue is scored zero. The key in scoring the cases is developing a consistent method of scoring the cues. There is no one "right" criteria for scoring the cues. For a more detailed examination of the scoring procedure, the Study Guide for Scoring Cues (Cain:1-4) and the example case are presented in Appendices A and B, respectively. Two more examples can be found in Lambert's thesis (Lambert:48-50).

Initial Results

Measurement Problems

The results of the regression analyses of the Ipavec, Sembower, and Williams data scored by this author indicates a problem in quantifying the cues. All three of the five cue force fit regressions failed to be established as being different from zero at the $\alpha = .05$ level. The descriptive levels of significance for the overall F tests are .170, .593, and .474, respectively. The R square values are .263, .131, and .158. These results are not even comparable to the random case set

scored by Lambert whose regression yielded overall significance at the .020 level and an R square of .399 (Lambert:93). Examination of the raw data indicates an unintended measurement error is being introduced frequently when scoring the cues in some cases. This happens when the evaluator does not assess and score the facts and party arguments the same as the arbitrator did. An award of -1, a union win, when management rights, contract language, and fairness were all scored positive and all other cues were scored zero would be an example of misjudging the cues. The reason this occurs frequently is probably because the evaluator's perspective when assessing and scoring the facts differs from the arbitrator as he assesses the facts. The value judgment made in weighting the cues differ.

The linear model, however, assumes the X variables are being measured without error and that error introduced is in the disturbance term μ which is thought of as representing the influence of explanatory variables that are not included in the equation. When the least-squares technique is applied to the actual measurements of the X and Y variables, the coefficients estimated will be biased, inconsistent, and quite possibly underestimated because the necessary limiting function does not vanish (Johnston: 281-283). Given this situation a new approach is necessary to reduce this measurement error.

The Modified Model

It is likely that by deleting the opinion part of the published cases, a critical part of the case is left out. The opinion section reveals the arbitrator discussion of the specific cues he considers significant in reaching his decision and in rendering his award; these cues are represented by $\hat{X}_{s_1}, \hat{X}_{s_2}, \dots, \hat{X}_{s_n}$ (see Figure 3.3). To reduce the measurement error the modified approach allows the evaluator to read the entire case thus letting the opinion section aid the evaluator in scoring the significant cues according to the importance given in the discussion which are represented by $\hat{X}_{s_1}, \hat{X}_{s_2}, \dots, \hat{X}_{s_n}$. The resulting model is

$$\hat{Y} = \hat{B}_s \hat{X}_s + \hat{B}_s \hat{X}_s + \dots + \hat{B}_{s_n} \hat{X}_{s_n}$$

where $\hat{B}_s, \hat{B}_s, \dots, \hat{B}_{s_n}$ represent the new estimates of the weights the arbitrator gives the various elements in his decision making process. It should be noted that the prediction setting has changed from that of the original model and proper consideration should be given if award prediction is attempted as in the brief scenario described using the original model.

It is more likely that by using the complete cases in scoring (which allow the evaluator access to the arbitrator's opinion and reasoning behind his awards) the policy captured will represent a more accurate one.

Published Case

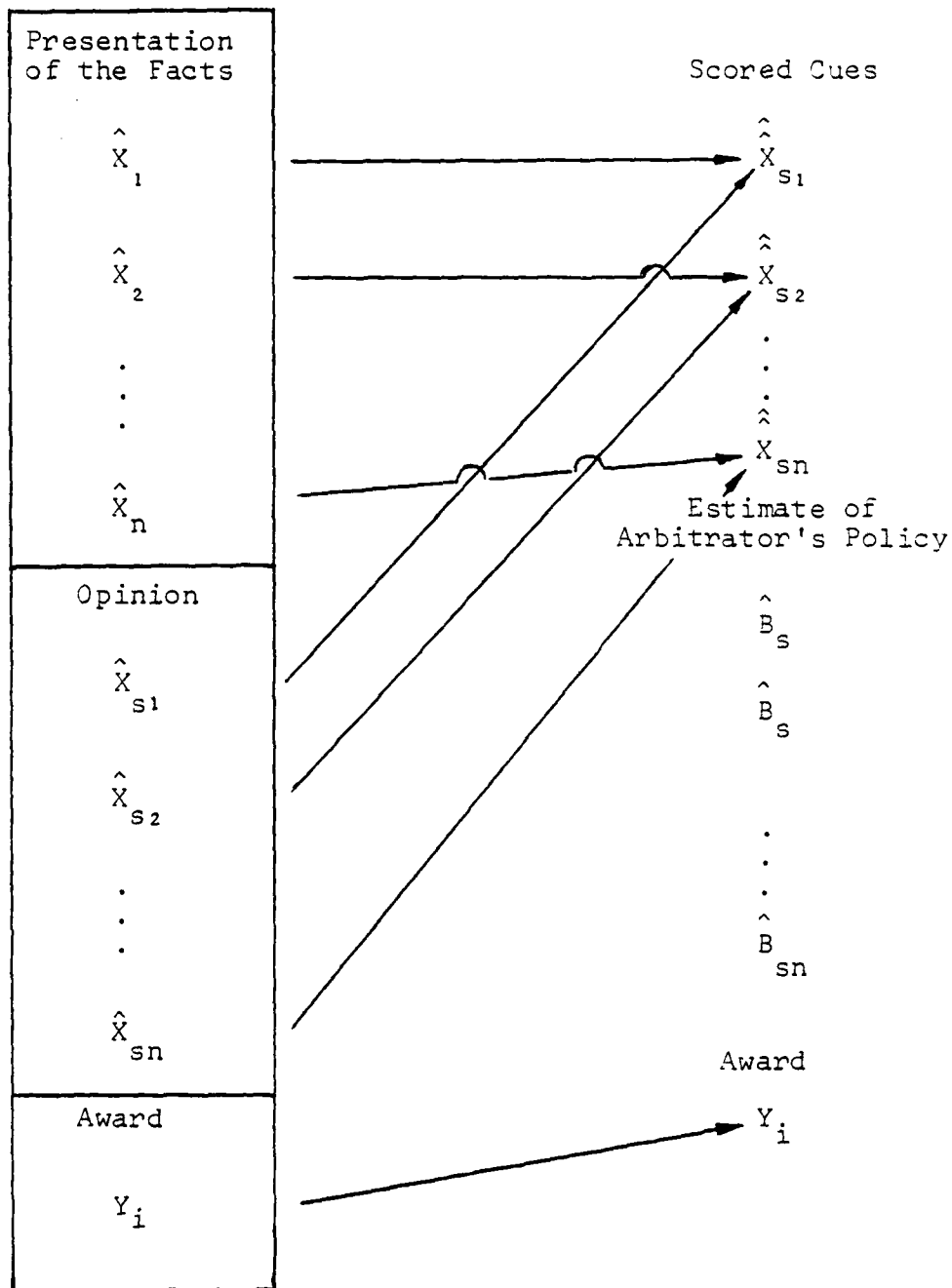


Fig. 3.3 Modified Arbitrator Policy Capturing Model

The Final Design

In light of the model modifications that have been made other changes have been necessitated. This section lays out the final case scoring design of the experiment in light of the two specific hypotheses.

HYPOTHESIS 1 The decision policy models of the same arbitrator differ significantly between case scorers.

The case sets originally developed for the masters students were administered as planned using Lambert's policy capturing model. This exercise resulted in three sets of data, one for each arbitrator, which will be compared to evaluate differences between scorers.

HYPOTHESIS 2 Decision policy models differ significantly between arbitrators.

For the policies captured by the linear model to, indeed, reflect the arbitrator's actual policies, the independent variables must be quantified accurately. The measurement problem described earlier indicated this was not the case and that there was an unintended systematic error in cue measurement. The model was, therefore, modified and strengthened so that the cues could be quantified more accurately. As a result of these modifications, all three case sets of the arbitrators were rescored by this writer using the opinion section to reduce the measurement error. The full seven cue model was used in the rescore. The results of both scoring methods will be compared in

evaluating model design. The modified model results will be used in testing for differences between arbitrators' policies.

This design, unfortunately, does not test for differences between scorers using the modified model.

Analysis Techniques

The models for this analysis are built using standard regression and discriminant techniques provided for in the Statistical Package for the Social Sciences (Nie, et al:320-367, 434-467) and, therefore, are not described here. The special hypothesis testing methods used in analyzing the models, however will be presented.

Pairwise Comparison of Policy Models

The difference between policy models can easily be established if the coefficients for different cues can be shown significantly different from zero. If, however, the coefficients for the same cue are both significantly different from zero another method is necessary to detect such differences. To compare the policies of different arbitrators, a regression model utilizing zero-one variables was developed:

$$Y = B_0 + B_1 X_1 + B_2 X_2 + \dots + B_7 X_7 + D_0 Y_1 + D_1 Y_1 X_1 + D_2 Y_1 X_2 + \dots + D_7 Y_1 X_7$$

Where

$Y_1 = 0$ for arbitrator A
 $Y_1 = 1$ for arbitrator B

Arbitrator A's Policy:

$$Y = B_0 + B_1 X_1 + B_2 X_2 + \dots + B_7 X_7$$

Arbitrator B's Policy:

$$Y = B_0 + D_0 + (B_1 + D_1)X_1 + (B_2 + D_2)X_2 + \dots + (B_7 + D_7)X_7$$

The D_i 's represent the coefficient corrections necessary to estimate arbitrator B's policy given arbitrator A's policy. The hypothesis test then is:

$$H_0: D_1 = 0$$

$$D_2 = 0$$

.

.

.

$$D_7 = 0$$

$$H_a: \text{At least one } D_i \neq 0$$

If the F test indicates both B_j and D_j are significantly different from zero it can also be concluded the weight the arbitrators A and B are using for cue i significantly differ by D_i .

Coefficient Comparison within Policy Models

The change in the Sum of the Squared Errors SSE is used to determine if there are significant differences between beta weights of the cues in the arbitrator's policy model. The test is as follows:

$$H_0: B_1 = B_2$$

$$H_a: B_1 \neq B_2$$

$$F^* = \Delta SSE / (SSE^* / (n - k - 1))$$

where

n = number of cases
k = number of independent variables

Reject H_0 if $F^* > F_{\alpha, 1, n-k-1}$ (McNichols:Chap 4, 54).

ΔSSE represents the change in the sum of squares due to error when the two cue scores are added together in forming one cue. This forces the two cues that have been combined to have the same beta weights. Numerically ΔSSE is the difference between SSE^* for the regression equation without the combined cues and SSE for the regression equation with the combined cues.

Scorer Cue Reliability Analysis

This type of analysis is used to evaluate how consistently each cue was scored between scoring teams for their particular arbitrator. The reliability measure is derived from the analysis of variance experimental design. In this application the dependent variable is the mean cue score for cue j and the independent variable is the scorer. A separate analysis is performed on each of the five cues for the three arbitrators, ultimately resulting in fifteen reliability coefficients.

The reliability coefficient is calculated accordingly:

$$r = 1 - \frac{\text{Mean Square Error Within Cases}}{\text{Mean Square Error Between Cases}}$$

and the reliability coefficient will range from zero to one (Winer:288). The mean square errors are calculated in the SPSS analysis of variance runs.

A high reliability coefficient for cue j would indicate cue j was scored consistently throughout the cases by the k scorers (or scoring teams). A low reliability coefficient would indicate cue j was scored differently throughout the cases by the k scorers.

CHAPTER IV

ANALYSIS OF RESULTS

This chapter presents the results of the data analysis which is divided into five major sections: Between scorer analysis, between model analysis, within model analysis, between arbitrator analysis, and sample size analysis.

The conceptual modeling techniques have resulted in two aggregate groups of data. The original model has five predictor cues: Management rights, contract language, past practice, fairness, and effect on the worker. The modified model has seven predictor cues; the two additional cues are negotiating history and prior awards.

Reading the opinion sections of the arbitration cases in the rescoring of the case sets revealed that the arbitrator's formal award is not always a clear indicator of the case outcome. Some awards were changed in light of the arbitrator's discussion and were recoded accordingly. It should also be noted that in coding split decisions, it is difficult to define a split decision in precise terms. For purposes of coding awards in this exercise a split decision is viewed as a simultaneous union and management win. For example, when an arbitrator reduces a discharge to a suspension and in the discussion states that this was

the grievant's last chance, the decision is essentially split. The union has won because they saved the worker's job, yet management has won also because even though their discharge has been reduced to a suspension, nevertheless, management rights have been upheld.

Between Scorer Analysis

The data sets for this analysis section were obtained from the student scoring exercise. The Ipavec and Williams case sets were each scored three times, and the Sembower case set was scored four times.

Regression Results

Stepwise regressions were performed on the ten data sets, and the final model for each data set included all cues significant at the .10 level or, if no cues were significant, the most significant cue. The resulting R square values varied from a low of .10 to a high of .275 at overall levels of significance of .591 and .032, respectively (see Appendix G). Thus even in the best of the student models over 70 percent of the variability is left unexplained. Of the ten models, five are significant at the .10 level and in each of those models the cue fairness is also significant. The negative coefficient on some of the cue coefficients indicates the cue was scored in the opposite direction of the award.

Only one of the three Ipavec models is significant; the R square is .183 at a significance level of .065. Fairness and effect on the worker are the only two cues that can be established as different from zero. The coefficient for the cue effect on the worker is negative.

Of the four Sembower models, three are significant. The R square values are .174, .198, and .212 at overall significance levels of .019, .046, and .035, respectively. The cue fairness is significant in all three models. The contract language cue is also significant in one of the models and past practice in another. The contract language cue's coefficient is negative.

Of the three Williams models, only one is significant; the R square is .275 at a significance level of .232. Management rights, past practice, and fairness are the cues that can be established as different from zero. The past practice cue's coefficient is negative. This model was best of the group in terms of R square and number of coefficients different from zero.

The regression results clearly indicate that the results varied considerably between students within the arbitrator case set blocks, though none of the models were very powerful (as would be indicated by a high R square).

Reliability Results

The reliability coefficient is a measure of scoring consistency between scorers on the same cue for the same

arbitrator. As Table 4.1 indicates, the reliability coefficient varies from a low of .012 to a high of .814 (for calculation details see Appendix L).

The reliability coefficients indicate a lack of consistency between scorers for the following cues: Ipavec - contract language and effect on the worker; Sembower - effect on the worker; and Williams - management rights, contract language and fairness. Relatively high reliability is indicated for the following cues: Ipavec - past practice; Sembower - management rights, contract language, and past practice; and Williams - past practice and effect on the worker. Of these six cues that were scored relatively consistently between scorers only four significant coefficients resulted in the regression models out of a possible twenty-one. This indicates the students were consistently misjudging the cues.

Between Model Analysis

The methodology chapter introduced the cue measurement problem that resulted when the models were scored and analyzed using the original modeling scheme as defined by Lambert. As a result, a modified model was developed to reduce the cue measurement error. For comparison purposes the five cue modified model is used. The data sets for this and the following analysis sections were scored by the writer.

TABLE 4.1
RELIABILITY COEFFICIENTS

	Ipavec	Sembower	Williams
Management Rights	.547	.745	.168
Contract Language	.143	.814	.267
Past Practice	.783	.713	.783
Fairness	.441	.453	.147
Effect on the Worker	.012	.230	.676

Original Model

A stepwise regression on the five cue models for Ipavec, Sembower, and Williams including the most significant cues at the .12 level yielded R^2 values of .095, .093, and .085 at overall significance levels of .098, .095, and .112 respectively. Only one cue was significant in each of the regression models (see Table 4.2). The R^2 values indicate the models have little explanatory power and for this reason discriminant analysis was not even attempted.

Modified Model

A stepwise regression on the five cue models for Ipavec, Sembower, and Williams including the most significant cues at the .10 level yields R^2 values of .912, .848, and .381 with overall F statistics of 49.046, 29.097, and 104.084 for all three models, respectively. All five cues in the Sembower and Ipavec models are significant. Two cues, contract language and fairness are significant in the

TABLE 4.2
STEPWISE REGRESSION MODELS WITH
MOST SIGNIFICANT CUE AND
RELATED STATISTICS (ORIGINAL MODEL)

Cue	Arbitrator		
	Ipavec	Sembower	Williams
Management Rights	.188 ¹ .098 2.939	**	.320 .112 2.693
Contract Language	**	**	**
Past Practice	**	**	**
Fairness	**	.185 .095 2.982	**
Effect on the Worker	**	**	**
R ²	.095	.093	.085
Adjusted R ²	.063	.062	.053
Multiple R	.308	.305	.292
Overall F	2.939	2.982	2.693
Significance	.098	.095	.112

¹Format: Regression Coefficient
Level of Significance
Partial F for Individual coefficient

**Coefficient not significant at .10 level and not
included in the force fit regression

Williams model; the other three are not (see Table 4.3).
Discriminant analysis is not really valid in the modified
modeling scenario due to the change in the case scoring
methodology and therefore, is not used.

TABLE 4.3
REGRESSION MODELS AND
RELATED STATISTICS
(MODIFIED MODEL-FIVE CUES)

	Arbitrator		
	Ipavec	Sembower	Williams
Management Rights	.201 ¹ .006 8.940	.327 .004 9.720	**
Contract Language	.418 .000 80.529	.296 .000 19.986	.419 .000 98.160
Past Practice	.389 .000 16.882	.294 .000 4.364	**
Fairness	.197 .001 12.860	.299 .000 16.497	.366 .000 63.628
Effect on the Worker	.172 .036 4.931	.218 .043 4.514	**
R ²	.912	.848	.881
Adjusted R ²	.892	.819	.873
Multiple R	.954	.921	.939
Overall F	49.046	29.097	104.084
Significance	.000	.000	.000

¹Format: Regression Coefficient
Level of Significance
Partial F for Individual coefficient

**Coefficient not significant at .10 level and not included
in the force fit regression

In comparing both modeling techniques the R^2 values indicate the modified model is able to explain roughly 90 percent of the variance whereas the original model is only able to explain about 10 percent of the variance. The modified model is also able to establish more significant cues per individual model. This indicates the measurement problem in the original model is a considerable one. The measurement problem is also partially validated by the reliability analysis; the cues with high reliability between scorers failed to be consistently established as significant in the original model regression analyses indicating consistent cue misjudgment by the scorers. This point is clearly illustrated by comparing the two sets of raw data scored by this writer, one using the original model and the other, the modified model (see Appendix E). For example, this author scored the cue effect on the worker in favor of the Union in 26 of the 30 Ipavec cases, yet when the arbitrator's opinion was used in the scoring, the cue effect on the worker was scored in favor of the union in only 6 of the 30 Ipavec cases. Similar comparisons can be made with the other cues.

Within Model Analysis

A stepwise regression on the seven cue models for Ipavec, Sembower, and Williams including the most significant cues at the .10 level yielded R^2 values of .939, .909, and

.881 with overall statistics of 58.767, 34.397, and 104.084 for all three models, respectively. All seven cues in the Sembower model are significant. Six cues are significant in the Ipavec model; the prior awards cue was not present in the analysis because it was not scored in any of the cases. Two cues, contract language and fairness are significant in the Williams model, the other five are not (see Table 4.4).

The results of the within model test for significant coefficient differences indicates that for Ipavec the cue of contract language is significantly larger than the cues of management rights, fairness, effect on the worker, and negotiating history. The cue of contract language could not be established as greater than the cue of past practice, however. No other significant differences in coefficients could be established in the Ipavec model.

For the Sembower model none of the seven cues could be established as being different from each other.

The two significant cues for the Williams model, contract language and fairness, could not be established as being different from each other (see Appendix J).

When using regression analysis with multiple predictor variables, correlation between these predictor variables affects the resulting beta weights. For this reason correlation analysis was performed on the predictors for each model (see Appendix H).

TABLE 4.4
REGRESSION MODELS AND
RELATED STATISTICS
(MODIFIED MODEL-SEVEN CUES)

Cue	Arbitrator		
	Ipavec	Sembower	Williams
Management Rights	.197 ¹ .002 11.932	.295 .002 12.032	**
Contract Language	.380 .000 85.251	.220 .000 14.577	.419 .000 98.160
Past Practice	.312 .001 13.993	.265 .029 5.399	**
Fairness	.207 .000 19.739	.295 .000 23.167	.366 .000 23.623
Effect on the Worker	.183 .011 7.728	.248 .006 8.949	**
Negotiating History	.213 .004 10.482	.386 .004 9.935	**
Prior Awards	*	.161 .071 3.560	**
R ²	.939	.909	.881
Adjusted R ²	.923	.883	.873
Multiple R	.969	.954	.939
Overall F	58.767	34.397	104.034
Significance	.000	.000	.000

¹Format: Regression Coefficient

Level of Significance

Partial F for Individual coefficient

*Cue not present in scoring

**Coefficient not significant at .10 level and not included in the force fit regression

For the Ipavec model the cue contract language is significantly correlated with management rights and fairness at the .10 level; the zero-order correlations are .320 and .485, respectively; however, the partial correlations of these cues with the award as compared with the zero-order ones indicate there is no problem of collinearity.

For the Sembower model there are five significant cue correlations at a significance level of .10: Contract language with management rights, .326; fairness with management rights, .479; fairness with effect on the worker, .395; fairness with prior awards, .358; and contract language with prior awards, .443. Again the partial correlations compared with the zero-order ones there is no problem.

For the Williams model the cue management rights is significantly correlated with contract language and fairness; the correlations are .396 and .678, at significance levels of .027 and .001, respectively. The drop in correlation of management rights with the award, from .678 to .201, when the other cues are in the regression equation, indicates an intercorrelation problem is present between management rights and fairness.

Overall the correlation analysis indicates few cue intercorrelation problems are present.

Between Arbitrator Analysis

The fact that the Sembower model has seven significant cues, the Ipavec model has six significant cues, and the

Williams model has two significant cues indicates at the outset that there are policy differences between arbitrators. The three dummy variable regressions developed for pairwise model comparison of coefficients indicate some additional significant differences between coefficients exist (see Appendix I). The results will be presented for each of the seven cues.

The cue Management Rights is not significant for Williams and is for Ipavec and Sembower; thus a difference is established. The pairwise comparison (PWC) regression was not able to establish a difference between the Management Rights cue weights for Ipavec and Sembower.

The cue Contract Language is significant for all three arbitrators and the PWC regressions indicate the cue Contract Language for both Ipavec and Williams is significantly larger than that of Sembower.

The cue Past Practice is not significant for Williams and is for Ipavec and Sembower; thus a difference is established. The PWC regression was not able to establish a difference between the Past Practice cue weights for Ipavec and Sembower.

The cue Fairness is significant for all three arbitrators, and the PWC regressions were unable to establish significant differences between the cue weights for the three arbitrators.

The cue Effect On The Worker is not Significant for Williams and is for Ipavec and Sembower; thus a difference

is established. The PWC regression was not able to establish a difference between the Effect On The Worker cue weights for Ipavec and Sembower.

The cue Negotiating History is not significant for Williams and is for Ipavec and Sembower thus a difference is established. The PWC regression was not able to establish a difference between the Negotiating History cue weights for Ipavec and Sembower.

The cue Prior Awards is not present for Ipavec, not significant for Williams and is significant for Sembower, thus establishing a difference.

The data analysis thus does establish clear policy differences between arbitrators.

Sample Size Analysis

The purpose of the sample size analysis is to find out how stable the coefficients for the regression models are at approximately the $n = 30$ observation point. The cases are filed in chronological order, oldest to most recent, for this analysis. Force fit seven cue regressions are performed for each arbitrator using the following sample sizes: 15, 20, 25-n, where n is the last observation in the data set. The coefficients are then individually graphed for each arbitrator to give a visual display of the coefficient stability as the sample size increases (see Appendix K).

The graphs indicate the coefficients for Ipavec are the most stable of the three arbitrators. The coefficients for Sembower are stabilizing; however the cues may still be very sensitive to one observation as indicated by the considerable drop in the negotiating history coefficient on the last observation. The two significant coefficients for Williams are stabilizing. The cue management rights becomes significant for a few observations and is represented in the graph by the peak. The insignificant past practice and effect on the worker coefficients appear to be very sensitive to new observations.

Overall it appears the significant coefficients are relatively stable at the $n = 30$ observation point. It should be noted at this point, however, that the confidence intervals on the regression coefficients are wide as was evidenced by the few significant differences established by the within model coefficient testing. As a result, this type of analysis is only useful for getting a rough idea of the stability of the regression model coefficients.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study is to test more fully the model Lambert developed and to explore the inherent applications that may be possible in the labor-management setting. The formal design of the experiment is designed to test two major hypothesis concerning the arbitrator policy capturing model. The first hypothesis test is to establish how great the difference is between persons scoring the cases. The second hypothesis test is to establish how different the policies of individual arbitrators are. The data sets are collected by scoring case sets compiled from the arbitrators Ipavec, Sembower, and Williams.

The Original Model

In the original modeling scenario as developed by Lambert, the cases were to be scored in the absence of the award and arbitrator's opinion section because it was felt such knowledge might bias the results. The results Lambert obtained using regression analysis on the random arbitration cases do not reflect any possible bias as they were scored in the defined manner. The force fit five cue regression model for the random data yielded an R square of .399 at an overall significance level of .020 (Lambert:93). Lambert scored the

Wallen cases directly from the Labor Arbitration Reports and because the award and opinions are present so is the possibility of an upward bias. The five cue regression model for the Wallen data yielded an R square of .780 at an overall significance level of .000 (Lambert:94).

Lambert suggested the increased R square in the Wallen regression model might be because an individual arbitrator would be more consistent than a group of random arbitrators. The results of the case scoring exercise in the Federal and Industrial Labor Relations course, however, do not support such a conclusion. Of the ten resulting regression models (force fit five cues for comparison purposes) the five best models have R square values in the .2 - .3 range: .297, .255, .234, .268, and .254 at overall significance levels of .097, .169, .217, .143, and .190, respectively. These results are not as good as the random data model and not even comparable to the Wallen model. These results suggest the random case set may not be random, but instead a select group of cases chosen by the authors Schoen and Hilgert for certain reasons unknown to this writer. The student results suggest there was an upward bias when Lambert scored the cues, but this cannot be clearly confirmed without a rescoring of an edited set of Wallen cases. These student case scoring results indicate the original modeling approach is not as powerful (R square) as expected.

Reliability analysis on the five cues for each arbitrator indicates the cues that are scored the most consistently between the scorers, differed between arbitrators, and were not generally significant in the regression analysis. This clearly supports the initial analysis in the methodology chapter that a measurement problem was present. Reliability and regression analysis indicate scorers consistently judge the "facts" differently than the arbitrators do when they score the cues. Reliability analysis also indicates some of the cues are scored very inconsistently between scorers which means the scorers defined or perceived the same cue differently, or that some arbitrators present clearer case write ups.

The regression and reliability results clearly support Hypothesis 1: There are differences in the same arbitrator's policy as a result of different scorers.

The Modified Model

Because of the independent variable (cue) measurement problem suggested (and confirmed by the reliability analysis) the modeling scenario was changed to allow the scorer access to the arbitrator's opinion while scoring the cues. The thirty case sets were rescored by the writer and the results, in comparison with the writer's initial scoring, improved dramatically; the R square increased to the .9 range explaining 90 percent of the variability. The only drawback in

this modeling approach is that discriminant analysis can no longer be used to predict awards.

Arbitrator Policies

The analysis of the regression models for the three arbitrators clearly confirms Hypothesis 2: There are significant differences between arbitrators' policies. Arbitrators tend to establish patterns of weighting certain cues that are different from each other. A short discussion will now be presented on the decision policy of each arbitrator. Biographies of all three arbitrators are presented in Appendix C.

Charles F. Ipavec

The within model analysis indicates the cue of contract language is significantly greater than every other cue except the one past practice. No other significant differences between cue coefficients can be established.

Contract language appears to be Ipavec's most important cue and is established by its beta weight and its frequency of occurrence in the raw data. Past practice which does not appear often in the data is the cue with the next highest beta weight which implies past practice is important when it comes up.

The beta weights for fairness, management rights, negotiating history, and effect on the worker are very close together.

Ipavec did not mention prior awards in his case write ups, either in discussion or as might be cited by union or management in their case presentation. This may indicate Ipavec does not consider prior awards as important in reaching his decisions.

It should be noted Ipavec tends to award a fair number of split decisions.

John F. Sembower

Sembower was the only arbitrator of the three examined to use all seven cues significantly. The within model analysis did not establish any of the coefficients as being different.

Sembower draws on legal concepts not familiar to this writer which made scoring the cues on some cases difficult. Sembower does not appear to focus as intently on the contract language, like Ipavec and Williams who have significantly larger contract language coefficients, but instead appears to draw on the full realm of the environment as represented by the seven cue model to explain his award.

It is interesting to note union and management often cite prior awards when presenting their case to Sembower and he more often than not refutes them as not being the same as the situation at hand. Sembower, however, appears to be on top of current arbitrators' decisions and cites them in his discussion section in support of his award on reasonably frequent occasions.

Ralph Roger Williams

Williams has only two significant cues in his model, Contract Language and Fairness. The within model analysis did not establish a significant difference between them.

Williams was able to reach a decision from only the contract language one-third of the times in the cases sampled. The partial correlation analysis confirmed the zero-order correlation between management rights and fairness, .678, presents a problem. The high correlation between Management Rights and Fairness indicates Williams seldom upholds management's rights unless they acted in a reasonable manner as defined by the cue Fairness. This high intercorrelation is what prevented the Management Rights cue from being significant once fairness was in the model. This was evidenced by the large drop in partial correlation of management rights with the award, .643 with contract language in the regression equation, to .226 with contract language and fairness in the equation.

Regression analysis clearly indicates Williams tends to focus most intently on the two cues contract language and fairness.

Summary

Scoring cues using a systematic quantitative method followed by regression analysis provides a framework from which to determine the areas arbitrators tend to emphasize

in making their awards. The policies of the three arbitrators selected for this study have been shown to be different; moreover, the arbitrators frequently commented in their cases on the criteria they use in an instructive type of fashion. It is precisely comments like these that help to aid in understanding how each arbitrator perceives and evaluates each cue. Some of the more noteworthy comments from the cases scored are included here to clarify the arbitrators' views on some of the cues used in this scoring exercise.

Ipavec

General

When the intended meaning of a Collective bargaining Agreement, is to be formulated by an arbitrator the document and the policies and practice, all of which collectively make up the Agreement between the parties, must be considered as a whole [78-1 ARB ¶ 8098].

Since the alleged intent of each party as stated at the hearing is diametrically opposed to that of the other party, the intent of the parties subsequent to the agreement, must then be studied in order to resolve this conflict [78-2 ARB ¶ 8313].

Contract Language

The arbitrator is of the opinion that when conflicting sections of a contract appear, the sections must be construed in order to give effect to the intention of the parties as viewed in light of the whole agreement. Therefore anything in an agreement which conflicts with the chief purpose there in, must give way to the clause which makes the major interest effective [78-2 ARB ¶ 8310].

Past Practice

A past practice should not be invoked when it is directly contrary to the language of the agreement [77-2 ARB ¶ 8434].

With regard to contracts which are ambiguous in nature, the arbitrator is of the opinion that a parties failure to file grievances or to protest violations as to the other party's interpretation is sometimes held to constitute acceptance of such interpretation so as, in effect, to make it mutual [78-2 ARB ¶ 8313].

The arbitrator is of the opinion that in order to establish a practice that is binding, there must be action which has been unequivocal, clearly enunciated and acted upon, and it must be readily ascertainable over a reasonable period of time as a fixed and established practice by both [78-2 ARB ¶ 8313].

It is the opinion of the arbitrator that one of the major elements necessary, in order to establish the existence of a past practice, is that those who are bound pursuant to such past practice, have a thorough understanding of the practice [78-2 ARB ¶ 8449].

Negotiating History

Because the subject of funeral leave was on the agenda at the negotiation table, with the Union making a counter proposal, then the Company making a counter proposal, and finally, the Company's counter proposal being incorporated into the Agreement was executed and accepted by each of the parties, then, any past practice which concerns itself with funeral leave pay must, of necessity, be set aside and ignored, since the subject was definitively disposed of by the parties through negotiations by the insertion of Article XXI within the present Agreement between the parties [77-2 ARB ¶ 8434].

Sembower

Contract Language

From the standpoint of contract interpretation of a possibly ambiguous clause, there is the generally

accepted doctrine that whenever an unusual or novel form of expression is employed, it becomes incumbent upon the parties to emphasize that they are using their words in an unusual sense [70 LA 226].

General

The realities of negotiations and labor-management agreements being what they are, it cannot be expected that every possible eventuality will be covered [77-2 ARB ¶ 8368].

Fairness

The burden does rest, of course, upon the employer to establish "just cause" for any discipline and in connection with the so called "supreme penalty" of discharge it is generally held to be substantial [78-1 ARB ¶ 8054].

Contract Language

There is a doctrine in contract interpretation that where two clause appear to bear upon the same set of facts, that which is most directly addressed to the situation prevails [79-1 ARB ¶ 8256].

Williams

Fairness

Reasonable rules for the regulation of employee conduct, however, particularly when unilaterally established by the employer, must be made known to the employees, and the employees must be told the penalty or penalties for violation of the rule. The employees must be notified in any reasonable way [60 LA 534-535].

Contract Language and Past Practice

A past practice is binding on the parties, when their labor-management contract is silent, and also serves to show what the parties mean by unclear, ambiguous, or indefinite terminology in their labor-management contract. But a past practice can never

change the plain and clear meaning of contractual provisions. If the agreement is capable of only one interpretation or meaning, the parties are bound thereby, and the agreement cannot be varied by any past practice [62 LA 481].

Past Practice

An accepted past practice can serve to establish a rule where none existed before, or can serve to indicate the intent of the parties when contract language is vague or indefinite, but it cannot alter plain and definite contract language [66 LA 1001].

Other

The insurance carrier is bound only by its policy; the Company bound by the agreement [71 LA 796].

Applications for the Arbitrator Policy Capturing Model

The arbitrator policy capturing model has exhibited excellent explanatory power in this exercise, $R^2 = .9$, and was able to capture the policies of arbitrators and establish policy differences between them. As a result of modification to the modeling scenario, however, discriminant analysis is no longer valid, thus unbiased statistical prediction of awards cannot be accomplished. This changes the angle on union-management applications, and the model may not prove to be as useful in selecting an arbitrator as was anticipated. The model still has great value in other areas.

The case scoring exercise directs the reading of each arbitration case and forces its scorer to consistently identify and weight the particular cues the arbitrator

considers of importance in explaining his decision. Such an exercise is valuable because the scorer in a sense is forced to categorize the information, where the management or union arguments are weak or strong, in his scoring effort. This gives the scorer a more directed insight into arbitrators' areas of emphasis and indirectly instructs how certain labor related aspects of a business should be run. As a result of such case scoring efforts, the scorer might be able to help in evaluating how well a case might do in front of certain arbitrators. Regression analysis would provide the weights for the cues, and the experience of scoring the cues would help the scorer gain an understanding of what the arbitrator's view of each cue is. Such scoring exercise might prove beneficial to parties who are new at arbitration by providing a systematic method of learning about arbitration. In fact the educational and training possibilities are plentiful.

The arbitrator policy capturing model provides an excellent method to capture the philosophy or style of an arbitrator in a more concrete, well defined and quantative, manner. Such a method offers a strong challenge to the "gut feel" approach that is presently employed.

Recommendations for Further Study

The student reliability results using the original model indicate on some cues there is little consistency

between scorers for the same arbitrator, and the regression results indicated scorers make a difference in the regression models obtained. The design of this experiment did not allow between scorer analysis when using the modified model and the data sets represent solely the writer's scoring effort.

Further study should be done using the modified modeling approach and different scorers with an experimental design similar to the graduate student scoring exercise. This would determine if high between scorer consistency is more likely using the modified model.

Other suggestions to aid in scoring cues more consistently come from the student results. One approach is to have two students score the case set independently and then afterward meet together to discuss and establish a consensus scoring of the case sets. The one student team who used this approach obtained better results on the consensus regression model than either of their individually scored models. They also had one of the five significant models.

Another approach by one student was to read the case set twice and to take notes when scoring the cues and make short comments why each cue was scored the way it was. This student, incidently, obtained the highest R square and the most significant cues of any of the class regression models.

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Such approaches help keep the scorers from rushing through the scoring exercise and also help them to score the cues consistently. Establishing consistency in defining and scoring the cues is a must if meaningful and useable results are to be obtained in the policy capturing regression analyses.

Sample size of the case sets is an important consideration in the model and a case set size of forty is recommended for further studies. Such large sample sizes presents problems for some arbitrators since very few arbitrators have a large number of cases reported in the CCH Labor Arbitration Awards and the Labor Arbitration Reports. Therefore further research into the availability of written arbitration cases is necessary to see if this case availability limitation can be reduced. It is likely that case distribution networks exist.

It should also be noted that all the scorers for this study are graduate students in management and are not experts in labor relations or arbitration. It may be possible when an expert does the scoring to use the original model with good results; this study is not able to draw a conclusion on such a matter. An opportunity to have an expert or experts in the field score such case sets would provide the final test in establishing the usefulness of the original model. The results of this study indicate the modified model is the most promising approach to capturing the decision policy of a labor arbitrator at this time.

APPENDICES

APPENDIX A
STUDY GUIDE FOR SCORING CUES

You have been asked to score "cues" in a series of labor arbitration cases. Five criteria are to be used in the scoring:

1. Management rights or efficiency
2. Clear language of the contract
3. Past practices
4. Fairness
5. Effect on the worker

The scoring is to vary between a +2 (very strong management) to a -2 (very strong union), with a score of "0" being neutral (i.e., cue is not present).

Each student must come up with his own criteria for scoring. The key to the analysis is that whatever criteria the student ultimately uses he must apply it consistently. This study guide presents some issues and suggestions that the student should keep in mind in developing his criteria. It is not meant to be a method of scoring which all students should use. In the final analysis, each student must develop his own internal set of criteria and apply them consistently.

A. Discussion of the cues:

1. Management rights or efficiency:

This cue focuses on the following kinds of questions:

- (a) If management loses, will this seriously undermine the efficiency of the plant or erode management rights,

or

- (b) If management wins, will this increment the efficiency of the plant or enhance management rights?

If the answer is "no," a score of zero is probably appropriate.

If the answer is "yes," then the actual situation should be closely examined. Of particular importance in assigning a score is the long-run cost implications if management wins or loses. Many times the actual amount of money immediately involved in a labor dispute is trivial or even zero. Yet, the precedent-setting implications if management loses can involve an enormous long-run cost.

2. Clear language of the contract

The type of question involved here is the following:

- (a) Does the contract language reasonably support management or labor's interpretation?

If two or more clauses in the contract are in conflict or the language is ambiguous and you can't tell, you should probably score a zero.

3. Past practice

A practice that has continued for a long time without a challenge by either management or labor can often take on the nature of a property right or an unwritten agreement which management then finds it cannot unilaterally change. For instance, employees may follow the practice of brewing their own coffee, using their own coffee-making machines and purchasing their own coffee. This practice might go on for years, through several contract negotiations without either management or labor raising it as a bargaining issue. If one day the workers report for work

and find that their "home brew" has been replaced by new commercial coffee-dispensing machines, the union is almost certain to file a grievance. The union will probably argue that management cannot unilaterally move in the commercial machines based upon a "past practice." In many cases there will be an explicit "past practices" clause in the contract itself; for example, words to the effect that:

"Practices and policies now in effect and not covered by this agreement shall continue in effect for the duration of the agreement unless changed by mutual consent between the company and the union."

4. Fairness

In order to distinguish this cue from the following cue (Effect on the Worker), the cue of "fairness" should probably be looked at from a procedural perspective; namely, "was the decision of management reached in a fair and equitable manner?"

If, for example, a supervisor disciplines a worker but fails to follow the procedures required by the contract (say failure to have a union steward present when calling a worker into your office for disciplinary purposes), then this event would be favorable to the union case. A score of perhaps -1 or -2 would be justifiable.

5. Effect on the Worker

Any type of management action will probably produce some type of effect on the worker. Some actions may effect working conditions, others may affect the income of employees but not be of a disciplinary nature (Example: A change in job classification which alters wages or a decision concerning the assignment of

overtime). Some actions may be of a disciplinary nature with the penalty varying from a reprimand to suspension, or even immediate termination of employment.

In developing the scoring system for this cue, the student may want to use several categories of scoring depending upon the nature of management's action or even whether the offense is a major or minor one. For example, if a person is caught drinking on the job and this is his first offense and he is immediately fired, you might score this a -1 or even a -2 in favor of the union. Suppose, however, the employee was not only drinking on the job but also was in possession of a loaded gun. Under these circumstances you might change your scoring to a +2 in favor of management, since not only has a major offense been committed (drinking on the job which can severely affect plant efficiency), but there is now a life-endangering threat to other employees (possession of a weapon combined with drinking).

B. An Illustrative Example of the Scoring:

Case: #40 - A Drink "To Cut the Dust" - Schoen and Hilgert (3rd ed.), pg 267, see Appendix B.

(Note: The scoring on this case is meant to be illustrative only. It should not be viewed by the student as the only way of scoring or the "official" way of scoring. The key to scoring must always be the consistent application of his own scheme.)

1. Management Rights or Efficiency: Score: +2

Discussion: That Rollins passed Blendon a bottle of whiskey and that Blendon took a drink is not disputed. If management cannot discipline workers for drinking on the job, its

capability to effectively manage the work force in the interest of plant efficiency will be severely impaired. The potential cost to the company in the long run if it loses on an issue such as this is quite large.

2. Clear Language of the Contract: Score: +2

Discussion: In this particular case there is a very clear and strong management-rights clause. Furthermore, the clause has been implemented with work rules which: (1) are clearly consistent with the contract, (2) are clearly written, and (3) have been posted. That the company has the clear, legal right to discipline Blendon and Rollins is unquestioned.

3. Past Practice: Score: +2

Discussion: The company has followed a clear, long-standing and consistent past practice. The work rule concerning drinking is written down and has been made known to employees through meetings (it's not clear whether they were also posted). The rule has been enforced in the recent past by immediate termination of two previous employees (Gieger and Kirk).

4. Fairness: Score: -1

Discussion: The fact that management called in the union steward at the time discipline was administered is a plus for the company, as is the fact that management followed a consistent policy (i.e., Blendon and Rollins were not treated differently from other employees who were caught drinking on the job). These pluses are, however, counterbalanced by mitigating circumstances which the company chose to ignore--namely:

(a) Blendon had worked for the company for 12 years and had an almost perfect work record,

(b) Rollins did not intend to break Rule #2, and it was only by accident that she was in possession of the whiskey,

(c) Blendon took only one drink and was not intoxicated,

(d) Both immediately realized their mistake and promptly apologized. Because of these circumstances, the cue fairness was scored -1 in favor of labor.

5. Effect on the worker: Score: -2

Discussion: Given the totality of the fact in this case:

- (1) that there was only one drink,
- (2) taken on the spur of the moment,
- (3) without any intent to violate Rule #2, and
- (4) no damage to the company property or threat to human life was present,

this is viewed as a relatively minor offense. To immediately discharge someone for a minor offense is regarded as an overreaction by the company. Hence, this cue was scored -2 in favor of labor.

APPENDIX B
A DRINK "TO CUT THE DUST"

COMPANY: Packaging Corporation of America, St. Louis Container Plant

UNION: International Brotherhood of Pulp, Sulphite and Paper Mill Workers, Local 535

BACKGROUND

Philip D. Blendon¹ had worked since 1958 at the Packaging Corporation of America as a ZA Auto-Taper operator.² On March 26, 1969, the Company hired Miss Sally Rollins as a feeder. Both employees worked at the Saint Louis, Missouri, plant, which manufactures corrugated shipping containers.

On September 18, 1970, both Blendon and Miss Rollins were assigned to work on a band saw on the first shift. On this same day, Production Manager Jerry Dillings handed out paychecks in the plant. At 9:20 a.m., Dillings walked toward the band saw and noticed that it was not running. Since the morning break for the first shift ended at 9:10 a.m., Dillings knew that the band saw should have been operating. As he approached the band saw, he noticed that there were three loads of material pushed around the machine. Dillings looked around the three loads and noticed that Blendon and Miss Rollins were kneeling down. He observed that Blendon took a drink from a whiskey bottle, then handed it over to Miss Rollins who put the cap back on and placed the bottle of whiskey in her purse. At this time, Dillings approached them and said: "Come on. Let's go to the office." All three went to the office where Frank Harder, the plant manager, and Donald Crowell, the chief union steward, joined them. Blendon and Rollins admitted to what Dillings had observed. They were immediately discharged by the company for violating Rule 2 of the company's Rules of Conduct.

Both Rollins and Blendon filed grievances which protested their discharge. The Company denied these grievance, and the case eventually was submitted to arbitration.

POSITION OF THE COMPANY

The company maintained that Philip Blendon and Sally Rollins, by bringing and drinking alcoholic beverages in the plant,

¹All names have been disguised.

²The ZA Auto-Taper applies a paper or fabric tape to the side seam of corrugated paper cartons.

had violated long-established work rules placed in effect for the safety and convenience of all employees.³ The company pointed out that eleven months before the discharge of Blendon and Rollins, two other employees, Sam Gieger and Ed Kirk, had been discharged for similar offenses concerning the possession and drinking of alcoholic beverages. The company stated that on October 7, 1969, Production Manager Dillings had found almost a full can of beer belonging to Gieger, and the company promptly discharged him. Also, on July 31, 1970, the company discharged employee Ed Kirk, because Dillings had observed that Kirk was in no condition to continue working after the company physician had confirmed that Kirk had been drinking alcoholic beverages. The company stressed that neither the two employees nor the union had filed a grievance concerning these two incidents.

Moreover, the company pointed out that on February 9, 1970, Dillings held a meeting with all employees to discuss this problem of drinking alcoholic beverages in the plant; Dillings had warned the employees that the company would take action if this drinking continued. The company pointed out that both Blendon and Rollins were at the meeting.

The company further maintained that it had been trying seriously to reduce accidents in the plant as well as to improve the plant safety record. Company efforts in this direction would be in vain if employees continued to bring intoxicating liquor into the plant.

Finally, the company emphasized that both Blendon and Rollins should have been working instead of drinking at the time they were caught, since the company's morning break period lasted only until 9:10 a.m.

For all of these reasons, the company concluded that Blendon and Rollins were properly discharged for cause. The company requested that the grievance be denied.

POSITION OF THE UNION

The union recognized that Philip Blendon and Sally Rollins violated Rule 2 and that they should be penalized. However, the penalty of discharge was too severe.

The union asserted that Blendon was a good worker, and that his work attendance had been good. Before this incident occurred, Blendon had been reprimanded previously on only one occasion by the company and that was for taking excessive smoking

³See Appendix to this case.

breaks. This reprimand was meted out by a plant foreman, and it subsequently was rescinded and removed from Blendon's file in the course of the grievance procedure. The union pointed out that Plant Manager Frank Harder did not remember Blendon ever having been disciplined during the five years he had been plant manager. Production Manager Dillings had admitted that, prior to this incident, he had found no cause whatsoever to discipline Blendon. Further, the union submitted that the company should have taken into account the fact that Blendon had taken only one drink, and that he had never done anything of this nature during his 12 years with the company.

Blendon argued that certain other extenuating circumstances should have been considered by the company. On the day of the incident in question, the ventilation around the band saw was very poor, and he had gone twice to the water fountain to obtain a drink of water. When he returned from the water fountain the second time, he made a remark to Sally Rollins about the dust; specifically he told her that he would like to have something stronger than water "to cut the dust." Miss Rollins then replied that, just by chance, she had some whiskey in her purse. Miss Rollins offered it to him, and he then took a single drink.

Blendon added that he was not intoxicated. His mental and physical faculties were not impaired, nor was his judgment affected by only one drink.

The union pointed out that Blendon had had an excellent work record during his 12 years of employment, and that his behavior, other than for this offense, had been outstanding.

Concerning Miss Rollins, the union pointed out that she never had been disciplined previously by the company; to discharge her for a first offense would be too severe a penalty. The union conceded that Miss Rollins was wrong in offering Blendon a drink of whiskey and the union did not object to a penalty for her. But the union argued that something less than discharge was justified.

Miss Rollins testified that certain mitigating circumstances were relevant to her case. She testified that, on the night preceding her discharge, she was at a party. She took several friends home in her automobile. When they got out of her car, they left a small bottle containing about two inches of whiskey in the car. She noticed the bottle when she arrived home and placed it in her purse, since she did not want to leave it in the car. She stated that she was in a hurry the next morning (the day of her discharge) and forgot about the bottle until she took a kleenex tissue from her purse shortly after

9:00 a.m. She testified that when Blendon said he could use a drink (or words to that effect)-that only then did she offer him the bottle. The union claimed that Miss Rollins brought the bottle into the plant without any intent to violate Rule 2, and that her violation of the rule occurred when she offered Blendon a drink.

The union argued that the case differed in several respects from that of former employees Gieger and Kirk, both of whom had been discharged. Gieger had knowingly brought a can of beer into the plant, whereas Rollins unknowingly brought the bottle of whiskey on company property. Kirk was under the influence of alcohol at the time he was discharged, whereas Blendon had only a single drink and had full possession of all his faculties. Finally, neither Gieger nor Kirk had come to their union steward seeking to file a grievance. The fact that both Gieger and Kirk decided, for reasons known only to them, not to file a grievance should not influence the arbitrator's decision in this instance.

Both Blendon and Rollins admitted to their offense and stated that they regretted their behavior. They were asking to be given another chance. The union requested that the discharge actions of the company be rescinded, and that Blendon and Rollins be returned to their jobs.

Appendix

Pertinent Provisions of the Agreement

Article I-Management Rights

It is recognized and agreed that the management and operation of the plant and the direction of the work forces are the sole and exclusive rights of the Company and that in the fulfillment and accomplishment of these functions, the Company has and retains all of the rights, powers, and authorities it would have in the absence of this agreement; provided, however, that nothing herein shall supersede any other provisions of this Agreement. The subjects and matters contained in the various articles of this Agreement shall be subject to the grievance and arbitration procedure.

Pertinent Provisions of the Plant Rules and Safety Instructions

Rules of Conduct

The following list of offenses, practices and actions may subject an employee to disciplinary action including immediate suspension or final dismissal without notice:...

2. Introducing, possessing or using on the property of the Company intoxicating liquors ... or reporting for duty under the influence of such liquors ...

QUESTIONS

1. Did the company have the right under the agreement to discharge the two employees for taking a drink on company premises? Are there any limitations to the rights of management to enforce its rules in this situation?
2. Should the fact that employees Blendon and Rollins had relatively long and good employment records influence the arbitrator in his decision? Why, or why not?
3. Evaluate the testimony of Miss Rollins concerning the mitigating circumstances which contributed to her bringing the whiskey on plant premises.
4. What are the precedent implications involved in a case of this sort, particularly in reference to enforcement of plant rules and safety considerations?

APPENDIX C
ARBITRATORS' BIOGRAPHIES

CHARLES F. IPAVEC

931 National City East 6th Street Building, Cleveland, Ohio
44114. Telephone: 241-1397. Home: 2924 Fairmont
Boulevard, Cleveland Heights, Ohio 44118.

Attorney, Arbitrator, Educator.

Born 1921. Attended The Citadel (1944), Cleveland Marshall
Law School (J.D., 1950), Case Western Reserve
University (LL.M. 1967).

Private practice of law (1963 to present), Lecturer, Lake
Erie College (1965 to present), Engineer Officer,
USMC (1943-46).

Affiliated with American (Labor Law Section), Ohio, Cuyahoga,
and Cleveland Bar Associations; American Arbitration
Association, Public Employment Disputes Panel;
Industrial Relations Research Association; International
Society for Labor Law; FMCS.

Permanent arbitrator for internal disputes, Independent Workers
Association of E.W. Ferry Screw Products, Inc.

JOHN F. SEMBOWER

The Barrister Building, Suite 800, 29 South LaSalle Street,
Chicago, Illinois 60604. Telephone: (312) 236-2084.

Faculty member, Northwestern University, School of Commerce,
1945-1969; lecturer in business law, labor law,
Indiana University, since 1945-72, Loyola University,
since 1957 (on leave).

Born July 11, 1913. Attended Indiana University (A.V., 1934;
LL.B., 1941; J.D., 1941); George Washington University
(graduate study, 1935-37).

Faculty, Indiana State Teachers College, 1937-41; labor
relations and training, Manhattan (Atomic) District
project, 1941-45; extension instructor in job
evaluation, pension plans, industrial engineering,
Washington State College, 1943-45; counsel, field
office, U.S. Bureau of Budget, Chicago, Illinois,
1945-48; engaged in private practice of law, arbitration,
teaching, and writing, Chicago, Illinois, since 1949.

Affiliated with American, Illinois and Chicago Bar Associations;
National Academy of Arbitrators (board of governors
1969-72); labor panels AAA, FMCS, and National
Mediation Board.

Author of articles on negotiable instruments, suretyship, labor
law for West Publishing Company S Business Law by
Teevan and Smith; numerous articles on labor relations
including "Use of Rules of Evidence in Arbitration,"
in Industrial Relations (1947); "Trained Men" (1949);
"Why Lose Arbitrations?", in American Business (1955);
"Halting the Trend Toward Technicalities in Arbitration,"
Critical Issues in Arbitration, BNA. (1957).

RALPH ROGER WILLIAMS

Williams & Williams, 2628 Eighth Street, P.O. Box 2690,
Tuscaloosa, Alabama 35401 Telephone: (205)
758-8333. Home: 63 Woodland Hills, Tuscaloosa,
Alabama 35401. Telephone: (205) 553-7848.

Arbitrator and Attorney (since 1949).

Born 1918. Attended University of Georgia (A.B.J., 1944;
LL.B., 1947); Syracuse University (M.A., 1944);
Leland Stanford University, Graduate School of
Business & Industrial Relations (1947-48) Atlanta,
Georgia. Law School (LL.D., 1961); Leland Stanford
University School of Law (L.M., 1948) Alabama State
Bar Associations; United States Supreme Court bar.
Member (Board of Governors 1960-62) National Academy
of Arbitrators; AAA; FMCS.

Formerly Director of Industrial Relations, State of Alabama
(1959-63); professor, University of Alabama School
of Law (1949-52); history and journalism faculties,
University of Georgia (1945-47); professor of
Sociology, Wesleyan College (1948-49).

Author of following books: Standard Georgia Practice (six
volumes); Tennessee Workmen's Compensation; Williams
Alabama Evidence; Williams Alabama Workmen's Compen-
sation With Forms.

APPENDIX D
ARBITRATOR CASE REFERENCES

CHARLES F. IPAVEC

	<u>Reference</u>	<u>Type of Case</u>
1	77-2 ARB ¹ ¶8348	Discharge
2	77-2 ARB ¶8373	Discipline
3	77-2 ARB ¶8434	Funeral Leave
4	77-2 ARB ¶8403	Management Rights
5	77-2 ARB ¶8445	Working Conditions
6	69 LA ² 550	Discharge
7	77-2 ARB ¶8488	Job Classification
8	78-1 ARB ¶8098	Work Schedule
9	78-1 ARB ¶8185	Discharge
10	78-1 ARB ¶8202	Rates of Pay
11	70 LA 892	Subcontracting
12	70 LA 950	Funeral Leave
13	78-1 ARB ¶8259	Vacation Pay
14	70 LA 1058	Insubordination
15	78-2 ARB ¶8310	Holiday
16	78-2 ARB ¶8313	Rates of Pay
17	78-2 ARB ¶8325	Working Conditions
18	71 LA 257	Safety & Health
19	71 LA 488	Plant Rules
20	78-2 ARB ¶8449	Discipline
21	78-2 ARB ¶8550	Holiday Pay
22	78-2 ARB ¶8558	Safety
23	78-2 ARB ¶8497	Plant Rules
24	79-2 ARB ¶8391	Pay
25	72 LA 524	Seniority
26	72 LA 956	Discharge
27	79-2 ARB ¶8496	Seniority
28	79-2 ARB ¶8520	Hiring
29	79-2 ARB ¶8546	Overtime
30	80-1 ARB ¶8004	Safety

¹-CCH Labor Arbitration Awards.

²-Labor Arbitration Reports.

JOHN F. SEMBOWER

	<u>Reference</u>	<u>Type of Case</u>
1	65 LA ² 405	Discharge
2	65 LA 880	Discharge-Discipline
3	64 LA 731	Pension Plans
4	66 LA 352	Maternity Benefits
5	66 LA 428	Working Conditions
6	66 LA 1204	Discharge
7	67 LA 570	Benefit Plans
8	68 LA 593	Discharge
9	68 LA 599	Subcontracting
10	68 LA 1072	Work Schedules
11	77-2 ARB ¹ ¶8368	Premium Pay
12	77-2 ARB ¶8342	Quits
13	69 LA 201	Discharge
14	77-2 ARB ¶8481	Reinstatement
15	69 LA 507	Discipline
16	78-1 ARB ¶8054	Theft
17	70 LA 223	Wages
18	78-1 ARB ¶8173	Scheduling
19	78-2 ARB ¶8290	Discharge
20	78-2 ARB ¶8340	Reinstatement
21	71 LA 498	Job Vacancies
22	78-2 ARB ¶8461	Discharge
23	79-1 ARB ¶8075	Overtime/Seniority
24	79-1 ARB ¶8103	Discharge
25	72 LA 147	Wages
26	79-1 ARB ¶8256	Pay
27	79-1 ARB ¶8267	Holiday Pay
28	73 LA 959	Discharge
29	80-1 ARB ¶8013	Severance Pay
30	80-1 ARB ¶8059	Pension Plans

¹-CCH Labor Arbitration Awards.

²-Labor Arbitration Reports.

RALPH ROGER WILLIAMS

	<u>Reference</u>	<u>Type of Case</u>
1	60 LA ² 1117	Rate of Pay
2	60 LA 533	Discharge
3	60 LA 796	Discipline
4	61 LA 642	Discharge
5	62 LA 348	Discipline
6	62 LA 480	Disability Benefits
7	63 LA 69	Discharge
8	63 LA 574	Safety
9	63 LA 835	Wages
10	63 LA 1275	Job Transfer
11	63 LA 1310	Hours
12	66 LA 160	Vacations
13	67 LA 769	Bonuses
14	68 LA 353	Working Conditions
15	68 LA 1244	Wages
16	77-2 ARB ² ¶8350	Discipline
17	77-2 ARB ¶8422	Insurance Benefits
18	69 LA 573	Wages
19	77-2 ARB ¶8520	Tardiness
20	77-2 ARB ¶8568	Forced Retirement
21	70 LA 1007	Wages
22	71 LA 794	Dental Plan
23	71 LA 1165	Travel Expenses
24	79-1 ARB ¶8097	Quits
25	72 LA 219	Discharge
26	72 LA 581	Insurance Benefits
27	79-1 ARB ¶8230	Fringe Benefits
28	79-2 ARB ¶8336	Working Conditions
29	79-2 ARB ¶8540	Working Conditions
30	79-2 ARB ¶8548	Insurance Benefits

¹-CCH Labor Arbitration Awards.

²-Labor Arbitration Reports.

APPENDIX E

RAW DATA FOR BETWEEN
ARBITRATOR COMPARISONS

IPAVEC - ORIGINAL MODEL

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2		2	-2	0
2		-1		-2	-1	0
3		2		-2	-1	1
4	2	1		1	-1	0
5	2	2		1		0
6		2		1	-2	-1
7		1	-2	-2	-1	1
8		-1	2	-2	-1	-1
9				-1	-2	1
10		-1	-1	-2	-1	1
11	2	1		1		1
12		-1		-1	-1	-1
13		-2		-2	-1	-1
14	2			-2	-1	1
15		-2		-2	-1	-1
16		-2		-1	-1	1
17	2	1		2		-1
18				1		1
19		1		1	-1	1
20	1	-1	1	-2	-1	0
21		2	2	2	-1	1
22		-2		-2	-1	-1
23	2	1		2	-1	-1
24	2	2		2		0
25	1	1		1	-1	1
26		2		2	-2	1
27	2	1		1	-1	1
28		1		1		1
29		-1		1	-2	1
30		2		1	-1	1

SEMBOWER - ORIGINAL MODEL

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2		2		2
2A	2	1		-1	-2	-1
2B		-1		-2	-1	-1
3	2			1	-1	-1
4		-2		1	-1	-1
5	2	1	-2			-1
6	2	2		2	-2	0
7		1		1	-2	-1
8	2	2		-1	-2	-1
9	2	-1	-1	-1	-2	1
10	2	-1	1	1	-1	-1
11	1	1		-1	-1	0
12				-1	-2	1
13		1		-1	-2	-1
14	2	1		2	-2	-1
15	1	1		2		1
16	1	1		-2	-2	-1
17		1		-2	-1	-1
18	1	-1	-1	1	-1	-1
19		2		-2	-2	-1
20	1	-2		-1	-2	-1
21		-1		-2		1
22	2	1	2	1	-2	0
23		-1	-1	1		1
24	2	2		1	-2	0
25	2	2		2	-1	1
26		-2		-1		-1
27		2	1	1		-1
28		-1		-2	-2	-1
29		2		1	-1	-1
30		-1		-1		-1

WILLIAMS - ORIGINAL MODEL

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	1	2		2		1
2	1			-2		-1
3	2	1		-2	-2	-1
4	2	1	1	1	-2	-1
5	1			-2	-2	1
6		2		2	1	1
7	2	2		2	-2	1
8A	1	1		1		1
8B		-1		-1	-2	-1
9	2	1		1		-1
10	1	-1		-1	-1	-1
11	2	2		1		-1
12		2	+1	2		-1
13		-2		-1	-1	1
14		-1		-2	-1	1
15		2		1	-1	-1
16		-2		-2	-1	-1
17		2		1		-1
18				2		-1
19			-1	-2	-1	-1
20	2	1		1	-2	1
21		-1		-1	-1	-1
22		-1		1	-2	-1
23		-1		-1	-1	-1
24		-1		-2	-2	-1
25		-1		-2	-2	-1
26		1		-2	-2	-1
27		-2		-1		-1
28	2			2	-1	1
29	1		-2	-2	-2	0
30		1		2		-1

IPAVEC - MODIFIED MODEL

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	NEGOTIATING HISTORY	PRIOR AWARDS	AWARD
1	2				-2			0
2	2			-2				0
3		2				1		1
4	2			1	-2			0
5		1			-2	1		0
6		-2						-1
7		2						1
8		-1				-2		-1
9	2	2						1
10	1	2		1		1		1
11	2	2						1
12		-1		-1	-1			-1
13		-2		-1	-1	-1		-1
14		1		1				1
15		-2						-1
16	1	2				1		1
17		-2						-1
18	2	2		1				1
19	1	1				2		1
20			2	-2				0
21		2		2				1
22				-2				-1
23			-1	-2				-1
24		1		1	-2			0
25	1	2		1				1
26	1	2		2				1
27	1	2						1
28		2		2				1
29	2	1		1				1
30	1		1			2		1

SEMBOWER - MODIFIED MODEL

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	NEGOTIATING HISTORY	PRIOR AWARDS	AWARD
1	2	1		2			1	1
2A		-1		-2	-1			-1
2B				-2				-1
3		1				1	2	1
4		-1		-1			-2	-1
5		-2	-2					-1
6	2			-2				0
7		-1		-1	-1			-1
8				-2	-1			-1
9	1	1					1	1
10		-2		-1	-1			-1
11A		2						0
11B		-2						0
12		2			2		1	1
13				-2	-1			-1
14				-1	-2			-1
15	2			1				1
16				-2				-1
17		-1	-1	-1				-1
18			-2					-1
19				-2	-1	-1		-1
20		-1		-1		-1		-1
21	2	1		1			1	1
22	1			-2			1	0
23	2	1		1				1
24	1			-1				0
25		2						1
26		-2						-1
27		-1		-2			-2	-1
28				-2				-1
29				-2	-2			-1
30		-1				-2		-1

WILLIAMS - MODIFIED MODEL

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	NEGOTIATING HISTORY	PRIOR AWARDS	AWARD
1	1	2	1					1
2		-2						-1
3			-1	-2				-1
4				-2		-2		-1
5	2			2				1
6		2					1	1
7	2			2				1
8A		2						1
8B		-1			-1			-1
9		-2						-1
10		-2		-2	-1			-1
11		-1		-2	-1			-1
12		-2						-1
13	1							1
14		2						1
15				-2	-1			-1
16		-1		-1				-1
17		-2						-1
18				-2				-1
19				-2				-1
20	1	2		2	1			1
21		-2						-1
22		-2						-1
23		-2						-1
24				-2			-1	-1
25		-1		-2				-1
26		-1		-2				-1
27		-2					-1	-1
28	2	2		2				1
29	2				-2			0
30		-2						-1

APPENDIX F
RAW DATA FOR BETWEEN
STUDENT COMPARISONS

IPAVEC

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2		2	1	0
2	-1	1	-1	-2	-1	0
3	1	1		-1		1
4	2	1	-2	1	-1	0
5	2	1	-1	1	-1	0
6	1	2		2	-1	-1
7	1	1	-2	-1	-1	1
8	1	1	2	1	-1	-1
9	1			1	-2	1
10		1	-2	-1	-1	1
11	2	2	1	1		1
12	1	1		1		-1
13	1		-1	-1	-1	-1
14	2	-1		-1	-1	1
15		2		-1		-1
16		-1	1	1	-1	1
17	2	-1				-1
18	1			1	-1	1
19	1	1	-1	-1	1	1
20	1		2		-1	0
21	1	2	1		-1	1
22		-2		-2	-1	-1
23	2	1		-1	-1	-1
24	2	1		-1	-1	0
25	1			-1	-1	1
26	1	1		1	-2	1
27		1	-1	-1		1
28		-2		-1	-1	1
29	2	1	-1		-1	1
30		1	-1		-1	1

IPAVEC

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2		1	-1	0
2	1	-1	-1	-1	-1	0
3	1		-1	1	-1	1
4	2	1		1	1	0
5	1	2	-1	1	-1	0
6	2	2		-2	-2	-1
7	2		-2	-1	-1	1
8	2	-1	1	1	-1	-1
9	2	1		1	-1	1
10	1	1	-1	1	-1	1
11	2		1	1		1
12	2	1		2	1	-1
13	1	1	-1	-1	-1	-1
14	2			1	-1	1
15		-1		-2	-1	-1
16	1	1	1	1	-1	1
17	2	1		1		-1
18	1	-1		-1	-1	1
19	2	1	-1	1	-1	1
20	2	1		1	1	0
21	2		1	1	-1	1
22	1	2		-2	-1	-1
23	2	1		1	1	-1
24	2	1	1	1	-1	0
25	2	1		1	-1	1
26	2	1		1	1	1
27	2	1		-1	-1	1
28	1	1		1	-1	1
29	2	1	-1	-1	-1	1
30	1		1	1	-1	1

IPAVEC

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2		1	-2	0
2	-2	-2	-1	-1	-2	0
3	1	-2	-1	-2	-1	1
4	1	-1		1	-1	0
5	-1		1	1	-1	0
6	2	2		-1	-2	-1
7	-1	1	-2	-2	-1	1
8	2	2	1	1	-1	-1
9	-1	2		1	-2	1
10	-1	1		-1	-1	1
11	1	-1		1	-1	-1
12	1	1		1	-1	1
13	2	-1		1	-1	1
14	-2	-1		-2	-1	-1
15	-1	-1		-1	-1	-1
16	2	2		1	-1	1
17	2	1		-1	-1	-1
18	1	1		-1	-1	1
19	1		2	1	-1	0
20	1	1	1	-1	-1	1
21	-1	2		-2	-1	-1
22	2	-1		2	-1	-1
23	-1	1	1	-2	-1	0
24	1	1		1	-1	1
25	1	1		1	-2	1
26	-2	-2	-1	-1	-1	1
27	1	1	-1	1	-2	1
28	1	1	-1	1	-2	1
29	-1	-1	1	-1	-1	1
30						

SEMBOWER

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2		1	-2	1
2	2	2	-1	-1	1	1
3	1	2		1	-1	1
4		2		-1	-1	1
5				1	-1	1
6	2	-1		2		1
7	2	2	-1	1	-2	0
8				-1	-1	1
9	2	2		-1	2	1
10	1	-2	-2	-1	-1	1
11	2	2		2	-1	1
12	1	2	1		-1	0
13				-2	-2	1
14	2			-1	-2	1
15	2	2		1	-2	1
16	1	2		2	-1	1
17	2	2		-2	-2	-1
18	1	2	-2	-1	-1	-1
19	2	2	-2	-1	-1	-1
20	1	2		-1	-2	-1
21	2	-2		1	-2	-1
22	1		-2	-1	-1	1
23	2	2	1	1	-2	0
24	2	-2		1	-1	1
25	2	1		-1	-2	0
26	2			1	-1	1
27	1	-2		-2	-1	-1
28	1	2	1	1	-1	-1
29	2	2	2	-1	-2	-1
30		1	1	-2	-2	-1
31				-1	-1	-1

SEMBOWER

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	1		-1	-1	1
2	2		-1	-2	-2	-1
3	2	1		-2	-1	-1
4		1	2	-1		1
5		1				-1
6		-1	-2	1		-1
7	2	2	-1			0
8		2		-1		-1
9	2	1		-2	-2	-1
10		-2	-1	-1	-1	1
11	2	1	-1	-1		-1
12	1	2		-1	-1	0
13	2		1	-2	-2	1
14	2	2		-1	-2	-1
15	1			-1	-2	-1
16	-1			1	-1	1
17	2	2		-1	-2	-1
18	2	2	-1	-1	-1	-1
19	2	1	-1		-1	-1
20	1	2		-2	-2	-1
21	1	-2		-1	-1	-1
22	1	1		-1	-1	1
23	2	2	1	-1	-2	0
24	2	-1		1	-1	1
25	2	1	1	-1	-2	0
26	2	1		-1	-1	1
27	1	-1		-1	-1	-1
28	1	-1	1	-1	-1	-1
29	1	2		-1	-2	-1
30	1	2		-1	-1	-1
31	2	2		-1	-2	-1

SEMBOWER

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2	2	2	-2	1
2	2	2	1	2	-2	-1
3	2	2	1	1	-1	-1
4	2	2		2	-1	1
5			1	-1	-1	-1
6	2	-2	-2	-2	-1	-1
7	1	2		-1	-2	0
8		1		-2	-1	-1
9	2	2		1	-2	-1
10	2	-2	-2	-1	-2	1
11	2	2		1	-1	-1
12	1	2			-1	0
13	1			2	-2	-1
14	2				-2	-1
15	1	1		1	-2	-1
16	1			1	-1	1
17	1	1		-1	-2	-1
18		1		1	-2	-1
19	2		-1	1	-1	-1
20	1	2		-2	-2	-1
21	1	1		-1		-1
22	1			-1	-1	1
23	2	1	1	2	-2	0
24	2	-1	-1	2	-1	1
25	2	1		2	-2	0
26	1	1		1	-1	1
27	1	-1		-1	-1	-1
28	1	-1	1	-1	-1	-1
29	2	2	-1	-1	-2	-1
30	1	-1		-1	-1	-1
31	1	1			-2	-1

SEMBOWER

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2	1	2	-1	1
2	1	2	-2	1	-2	-1
3	1	2	-1		-1	-1
4	-1	1		-1	-2	1
5	-1	-1		-2	-2	-1
6	2	2			-1	-1
7	1	1	-1	-1	-2	0
8		1			-1	-1
9	1	2		-1	2	-1
10	2	-1	-1		-1	1
11	2		1	-1	-1	-1
12	1	1			-1	0
13		-1		-2	-1	1
14	1			-1	-1	-1
15	1			1	-1	-1
16	1	1	1		-1	1
17	1			-2	-2	-1
18	2	2	-2	2	1	-1
19	1	1	-2	-1	-2	-1
20	1	1		-2	-2	-1
21	2	-2		-2	-2	-1
22	1	-1	-1	-1	-2	1
23	2	1	1	2	1	0
24	1	-2		-1	-2	1
25	2		1	1	1	0
26	1	1		2	2	1
27	1	1		-2	-2	-1
28	1	2	1	2	1	-1
29	2	2	-1	1	-1	-1
30	1	2	-2	-1	-1	-1
31	1			-1	-2	-1

WILLIAMS

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	2	2			-1	1
2	2	-2	-1	-1	-1	-1
3	1	-2	1		-1	-1
4	2	-1	-1	-2	-2	-1
5	2	-1		-2	-1	1
6	2	2	2	2	-1	1
7	2	-1	-2	-1	2	1
8	2	-2				1
9	2	-2			-2	-1
10	2	-2		-2	-1	-1
11	2	2		2		-1
12	2	2	2	2	-1	-1
13	2	2		2	-1	-1
14	2	-1	1	1	-1	1
15	1	1	1		-1	1
16	1	-1		-1	-1	-1
17		-2		-2	-1	-1
18	2	2				-1
19		2	2	1		-1
20	2	2	1	2		-1
21	2	-1	-1	-2	-2	1
22		-2	-1	-2	-2	-1
23	2	-2		-2	-1	-1
24	2	2		2		-1
25	2	-2		-2	-2	-1
26	2	-2		-2	-2	-1
27	2	2		2		-1
28	2	-1		-1	-1	-1
29	2	-2		1	-2	1
30	2	-2	-2		-1	0
31	2	1		2		-1

WILLIAMS

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1		2	1	1	1	1
2	2			1	1	1
3			1	2	1	1
4	1		2	1	2	1
5				1	1	1
6		2	1	1	1	1
7	2	2	-1	-1	1	1
8		-2			2	1
9	1					-1
10		-2		1	1	-1
11	1			-1	-1	-1
12		-1	1			-1
13	1	2			-1	-1
14		-2			-1	-1
15	1		1		-1	1
16	1				-1	1
17	1	2		1	-2	-1
18				1	-1	-1
19		1	2	2	-1	-1
20	1		-2	-1	-1	-1
21	1	-1	-1		-2	1
22		-2	-1		-1	-1
23					-1	-1
24					-1	-1
25	1			-1	-2	-1
26				-1	-2	-1
27	1	-2		1	-1	-1
28	1	-2			-1	-1
29	2	-2	2	2	-1	-1
30	1	-1	-2		-1	0
31	1				-1	-1

WILLIAMS

CASE NO.	MANAGEMENT RIGHTS	CONTRACT LANGUAGE	PAST PRACTICE	FAIRNESS	EFFECT ON THE WORKER	AWARD
1	1				-1	-1
2	2	-2		-2	-2	-1
3	2	2	1	-1	-1	-1
4	2	1	2		-2	-1
5	2			-1	-1	1
6	1	2	1			1
7	2	2	-1		1	1
8	1	2				1
9		-1			-1	-1
10	2	-1		-1	-1	-1
11	2	-2		-2	-1	-1
12	2	-1	2	-1	-1	-1
13	1				-1	-1
14	1	-2	-1	-2	-1	1
15	1			-1	-1	1
16	1	2		-2	-1	-1
17	1	2		-2	-1	-1
18		-2		-1	-1	-1
19		1	1	-1	-1	-1
20	2	-1	-2	-2	-1	-1
21	2	-2	-1	-2	-2	1
22		2				-1
23		-1		-1	-1	-1
24		-2		-1		-1
25	2			-2	-2	-1
26	1			-2	-2	-1
27		2		1		-1
28	1	-2	1		-1	-1
29	2		-1			1
30	2	2	-2	-2	-1	0
31		1				-1

APPENDIX G
REGRESSIONS-STUDENTS

IPAVEC

Stepwise Regression Models
and Related Statistics

	Scoring Team		
	<u>A</u>	<u>B</u>	<u>C</u>
Management Rights	**	**	**
Contract Language	**	**	**
Past Practice	**	**	-.153* .354 .888
Fairness	-.134* .286 1.182	.323 .037 4.826	**
Effect on the Worker	**	-.417 .057 3.957	**
R ²	.041	.183	.031
Adjusted R ²	.066	.123	.0000
Multiple R	.201	.428	.175
Overall F	1.182	3.030	.888
Significance	.286	.065	.354

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficients

*-most significant cue

** -not significant at .10 level and not included in the
force fit regression

SEMBOWER

Stepwise Regression Models and Related Statistics

<u>Cue</u>	<u>A</u>	Scoring Team		
		<u>B</u>	<u>C</u>	<u>D</u>
Management Rights	**	**	**	**
Contract Language	-.362 .014 6.808	**	**	**
Past Practice	**	**	.469 .028 5.384	-.173* .327 .995
Fairness	.255 .050 4.195	.266 .019 6.124	.365 .070 3.553	**
Effect on the Worker	**	**	**	**
R ²	.212	.174	.198	.033
Adjusted R ²	.156	.149	.140	.0000
Multiple R	.461	.418	.445	.132
Overall F	3.770	6.124	3.449	.995
Significance	.035	.019	.046	.327

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficients

*-most significant cue

** -not significant at .10 level and not included in the
force fit regression

WILLIAMS

Stepwise Regression Models
and Related Statistics

<u>Cue</u>	Scoring Team		
	<u>A</u>	<u>B</u>	<u>C</u>
Management Rights	.400 .054 4.064	**	.284* .285 1.188
Contract Language	**	**	**
Past Practice	-.417 .027 5.461	**	**
Fairness	.400 .043 4.522	**	**
Effect on the Worker	**	-.104* .591 .296	**
R ²	.275	.010	.039
Adjusted R ²	.195	.0000	.006
Multiple R	.525	.100	.198
Overall F	3.415	.296	1.188
Significance	.032	.591	.285

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficients

*-most significant cue

** -not significant at .10 level and not included in the
force fit regression

APPENDIX H
ZERO-ORDER CORRELATION
AND PARTIAL CORRELATION

IPAVEC

	P2	P3	P4	P5	P6
P1	.320 ¹ .085	*	*	*	*
P2		*	.485 .007	*	*
P3			*	*	*
P4				*	*
P5					*

P1--Management Rights

P2--Contract Language

P3--Past Practice

P4--Fairness

P5--Effect on the Worker

P6--Negotiating History

¹Format: Correlation (Zero-Order)
Significance Level

*Correlation not significant at .10 level

SEMBOWER

	P2	P3	P4	P5	P6	P7
P1	.326 ¹ .069	*	.478 .006	*	*	*
P2		*	*	*	*	.443 .011
P3			*	*	*	*
P4				.395 .025	*	.358 .044
P5					*	*
P6						*

P1--Management Rights

P2--Contract Language

P3--Past Practice

P4--Fairness

P5--Effect on the Worker

P6--Negotiating History

P7--Prior Awards

¹Format: Correlation (Zero-Order)
Significance Level

*Correlation not significant at .10 level

WILLIAMS

	P2	P3	P4	P5	P6	P7
P1	.396 ¹ .027	*	.678 .001	*	*	*
P2		*	*	*	*	*
P3			*	*	*	*
P4				*	*	*
P5					*	*
P6						*

P1--Management Rights

P2--Contract Language

P3--Past Practice

P4--Fairness

P5--Effect on the Worker

P6--Negotiating History

P7--Prior Awards

¹Format: Correlation (Zero-Order)
Significance Level

*Correlation not significant at .10 level

CORRELATION COMPARISONS

$$\text{Partial Correlation} = \frac{\sqrt{F_{P1}}}{\sqrt{F_{P1} + \text{Residual df}}} \quad (\text{Theil:174})$$

Ipavec

Award

	Zero-Order	Partial
P1	.408	.534
P2	.382	.387
P3	.204	.615
P4	.572	.680
P5	.261	.501
P6	.461	.560

Sembower

Award

P1	.664	.578
P2	.681	.701
P3	.238	.429
P4	.681	.615
P5	.480	.521
P6	.318	.541
P7	.560	.360

Williams

Award

	Zero-Order	Partial
P1	.678	.201
P2	.782	.839
P3	.281	.200
P4	.683	.636
P5	.213	.056
P6	.124	.154
P7	.301	.197

APPENDIX I
PAIRWISE COMPARISON MODELS

PAIRWISE POLICY COMPARISON

<u>Cue</u>	<u>Ipavec</u>	<u>Arbitrator Sembower</u>	<u>Δ</u>
Management Rights	.197 ¹ .002 11.932	.295 .002 12.032	.098 .336 .944
Contract Language	.380 .0000 85.251	.220 .001 14.577	.160 .027*** 5.180
Past Practice	.312 .001 13.993	.265 .029 5.399	.047 .735 .116
Fairness	.207 .000 19.739	.243 .000 23.167	.098 .255 1.329
Effect on the Worker	.133 .011 7.728	.243 .006 8.949	.065 .536 .388
Negotiating History	.213 .004 10.482	.386 .004 9.935	.173 .204 1.660
Prior Awards	*	.161 .071 3.560	.161 .071** 3.560

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficients

*-Cue not present in scoring

**-Significant Δ at .10 level

***-Significant Δ at .05 level

PAIRWISE POLICY COMPARISON

<u>Case</u>	<u>Sambower</u>	<u>Arbitrator Williams</u>	<u>Δ</u>
Management Rights	.295 ¹ .002 12.032	.146 .334 .973	-.149 .376* .799
Contract Language	.220 .001 14.577	.387 .000 54.853	.167 .039** 4.500
Fast Practice	.265 .023 5.399	.236 .333 .966	-.127 .317* .111
Fairness	.295 .000 13.167	.302 .001 15.535	.007 .340 .006
Effect on the Worker	.243 .006 3.949	-.040 .783 .074	-.283 .037* 3.063
Negotiating History	.386 .004 9.935	.131 .462 .560	-.255 .233* 1.460
Prior Awards	.161 .071 3.560	.237 .263 1.314	.076 .727* .124

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficients

*-Significant difference by default

** -Significant Δ at .05 level

PAIRWISE POLICY COMPARISON

<u>Cue</u>	<u>Ipavec</u>	Arbitrator <u>Williams</u>	<u>Δ</u>
Management Rights	.197 ¹	.146	.051
	.002	.334	.729**
	11.932	.973	.122
Contract Language	.380	.387	.007
	.0000	.0000	.913
	85.251	54.853	.121
Past Practice	.312	.238	.074
	.001	.339	.751**
	13.993	.955	.102
Fairness	.207	.302	.095
	.000	.001	.273
	19.739	15.585	1.203
Effect on the Worker	.183	-.040	.223
	.011	.789	.147**
	7.728	.074	2.174
Negotiating History	.213	.131	.082
	.004	.462	.637**
	10.482	.560	.226
Prior Awards	*	.237	.237
		.263	.263
		1.314	1.314

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficients

*-Cue not present in scoring

**-Significant difference by default

APPENDIX J
BETA WEIGHT DIFFERENCES
SIGNIFICANCE TESTS

IPAVEC DATA WITH SIX CUES

SSE with all cues separate 1.339
 Number of cases (n) 30
 Number of variables (k) 6
 Test statistic: $F^1_{.05, 1, 23}$ 4.28
 $F^2_{.10, 1, 23}$ 2.94

$$H_0: B_i = B_j \quad F^* = \frac{SSE_{ij} - SSE}{SSE/(n-k-1)}$$

$$H_a: B_i \neq B_j$$

reject when $F^* > F^1_{.05, 1, 23}$ or when $SSE_{ij} > 1.589$
 $F^* > F^2_{.10, 1, 23}$ or when $SSE_{ij} > 1.510$

SSE_{ij} - sum of squared errors when coefficients i and j have equal weights

H_0 $B_1 = B_2$	H_a $B_1 \neq B_2$	$SSE_{12} = 1.648 > 1.589$ therefore reject H_0
$B_1 = B_3$	$B_1 \neq B_3$	$SSE_{13} = 1.424 < 1.589$ therefore fail to reject H_0
$B_1 = B_4$	$B_1 \neq B_4$	$SSE_{14} = 1.340 < 1.589$ therefore fail to reject H_0
$B_1 = B_5$	$B_1 \neq B_5$	$SSE_{15} = 1.341 < 1.589$ therefore fail to reject H_0
$B_1 = B_6$	$B_1 \neq B_6$	$SSE_{16} = 1.341 < 1.589$ therefore fail to reject H_0
$B_2 = B_3$	$B_2 \neq B_3$	$SSE_{23} = 1.371 < 1.589$ therefore fail to reject H_0
$B_2 = B_4$	$B_2 \neq B_4$	$SSE_{24} = 1.645 > 1.589$ therefore reject H_0
$B_2 = B_5$	$B_2 \neq B_5$	$SSE_{25} = 1.647 > 1.589$ therefore reject H_0
$B_2 = B_6$	$B_2 \neq B_6$	$SSE_{26} = 1.553 > 1.510$ therefore reject H_0
$B_3 = B_4$	$B_3 \neq B_4$	$SSE_{34} = 1.417 < 1.589$ therefore fail to reject H_0
$B_3 = B_5$	$B_3 \neq B_5$	$SSE_{35} = 1.419 < 1.589$ therefore fail to reject H_0

IPAVEC - CONTINUED

H_0 $B_3 = B_6$	H_a $B_3 \neq B_6$	$SSE_{36} = 1.379 < 1.589$ therefore fail to reject H_0
$B_4 = B_5$	$B_4 \neq B_5$	$SSE_{45} = 1.345 < 1.589$ therefore fail to reject H_0
$B_4 = B_6$	$B_4 \neq B_6$	$SSE_{46} = 1.339 < 1.589$ therefore fail to reject H_0
$B_5 = B_6$	$B_5 \neq B_6$	$SSE_{56} = 1.346 < 1.589$ therefore fail to reject H_0

SEMBOWER DATA WITH SEVEN CUES

SSE with all cues separate 2.105
 Number of cases (n) 32
 Number of variables (k) 7
 Test statistic: $F_{.05, 1, 24}$ 4.26

$$H_0: B_i = B_j \quad F^* = \frac{SSE_{ij} - SSE}{SSE / (n - k - 1)}$$

$$H_a: B_i \neq B_j$$

reject when $F^* > F$ or when $SSE_{ij} > 2.478$

SSE_{ij} - sum of squared errors when coefficients i and j have equal weights

H_0 $B_1 = B_2$	H_a $B_1 \neq B_2$	$SSE_{12} = 2.146 < 2.478$	therefore fail to reject H_0
$B_1 = B_3$	$B_1 \neq B_3$	$SSE_{13} = 2.108 < 2.478$	therefore fail to reject H_0
$B_1 = B_4$	$B_1 \neq B_4$	$SSE_{14} = 2.105 < 2.478$	therefore fail to reject H_0
$B_1 = B_5$	$B_1 \neq B_5$	$SSE_{15} = 2.118 < 2.478$	therefore fail to reject H_0
$B_1 = B_6$	$B_1 \neq B_6$	$SSE_{16} = 2.135 < 2.478$	therefore fail to reject H_0
$B_1 = B_7$	$B_1 \neq B_7$	$SSE_{17} = 2.208 < 2.478$	therefore fail to reject H_0
$B_2 = B_3$	$B_2 \neq B_3$	$SSE_{23} = 2.113 < 2.478$	therefore fail to reject H_0
$B_2 = B_4$	$B_2 \neq B_4$	$SSE_{24} = 2.169 < 2.478$	therefore fail to reject H_0
$B_2 = B_5$	$B_2 \neq B_5$	$SSE_{25} = 2.110 < 2.478$	therefore fail to reject H_0
$B_2 = B_6$	$B_2 \neq B_6$	$SSE_{26} = 2.223 < 2.478$	therefore fail to reject H_0

SEMBOWER - CONTINUED

$B_2 = B_7$	$B_2 \neq B_7$	$SSE_{27} = 2.127 < 2.478$	therefore fail to reject H_0
$B_3 = B_4$	$B_3 \neq B_4$	$SSE_{34} = 2.111 < 2.478$	therefore fail to reject H_0
$B_3 = B_5$	$B_3 \neq B_5$	$SSE_{35} = 2.106 < 2.478$	therefore fail to reject H_0
$B_3 = B_6$	$B_3 \neq B_6$	$SSE_{36} = 2.146 < 2.478$	therefore fail to reject H_0
$B_3 = B_7$	$B_3 \neq B_7$	$SSE_{37} = 2.153 < 2.478$	therefore fail to reject H_0
$B_4 = B_5$	$B_4 \neq B_5$	$SSE_{45} = 2.119 < 2.478$	therefore fail to reject H_0
$B_4 = B_6$	$B_4 \neq B_6$	$SSE_{46} = 2.149 < 2.478$	therefore fail to reject H_0
$B_4 = B_7$	$B_4 \neq B_7$	$SSE_{47} = 2.220 < 2.478$	therefore fail to reject H_0
$B_5 = B_6$	$B_5 \neq B_6$	$SSE_{56} = 2.186 < 2.478$	therefore fail to reject H_0
$B_5 = B_7$	$B_5 \neq B_7$	$SSE_{57} = 2.153 < 2.478$	therefore fail to reject H_0
$B_6 = B_7$	$B_6 \neq B_7$	$SSE_{67} = 2.274 < 2.478$	therefore fail to reject H_0

WILLIAMS DATA WITH TWO CUES

SSE with all cues separate	3.006
Number of cases (n)	31
Number of variables (k)	2
Test statistic: $F_{.05, 1, 28}$	4.20

$$\begin{aligned}
 H_0: B_i &= B_j & F^* &= \frac{SSE_{ij} - SSE}{SSE/(n-k-1)} \\
 H_a: B_i &\neq B_j
 \end{aligned}$$

reject when $F^* > F$ or when $SSE_{ij} > 3.457$

SSE_{ij} - sum of squared errors when coefficients i and j have equal weight

$$H_0: B_2 = B_4 \quad H_a: B_2 \neq B_4 \quad SSE_{24} = 3.069 < 3.457$$

therefore fail to reject H_0

APPENDIX K

SAMPLE SIZE
REGRESSIONS

IPAVEC

n ²	15	20	25	26	27	28	29	30
B ₁	.101 ¹	.096	.171	.168	.168	.171	.187	.197
	.253	.194	.018	.019	.017	.012	.004	.002
	1.493	1.880	6.714	6.571	6.777	7.654	10.420	11.931
B ₂	.458	.443	.395	.393	.400	.399	.394	.380
	.000	.0000	.000	.0000	.000	.0000	.000	.0000
	52.214	81.751	68.531	68.341	76.534	80.706	82.101	85.251
B ₃		.177	.297	.296	.294	.294	.296	.312
		.107	.004	.004	.003	.003	.002	.001
		3.002	11.040	11.045	11.170	11.746	12.149	13.993
B ₄	.127	.120	.217	.201	.197	.194	.200	.207
	.217	.132	.001	.001	.001	.001	.000	.000
	1.766	2.590	15.528	14.791	14.772	16.119	18.189	19.739
B ₅	.151	.158	.172	.163	.165	.164	.173	.183
	.139	.059	.027	.033	.028	.025	.016	.011
	2.634	4.276	5.800	5.314	5.617	5.839	6.766	7.728
B ₆	.084	.158	.175	.182	.175	.177	.177	.213
	.479	.061	.043	.034	.036	.030	.028	.004
	.546	4.218	4.752	5.213	5.042	5.410	5.515	10.482

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficient

²n: number of cases

n ²		15	20	25	26	27	28	29	30	31	32
B ₁	F	.292 ¹	.311	.327	.332	.266	.298	.301	.304	.302	.295
		.047	.007	.000	.000	.006	.003	.003	.002	.002	.002
		5.758	10.411	20.423	22.760	9.507	11.046	11.584	11.656	11.830	12.032
B ₂	F	.042	.069	.084	.084	.166	.217	.219	.217	.224	.220
		.646	.357	.153	.144	.019	.002	.002	.002	.001	.001
		.230	.918	2.244	2.339	6.634	12.479	13.039	12.685	14.317	14.577
B ₃	F	.388	.354	.312	.312	.314	.248	.248	.245	.241	.265
		.065	.024	.007	.005	.023	.068	.065	.068	.068	.029
		4.762	6.684	9.585	10.065	6.160	3.729	3.800	3.680	3.666	5.399
B ₄	F	.245	.305	.289	.286	.316	.283	.278	.293	.290	.295
		.024	.001	.000	.000	.000	.000	.000	.000	.000	.000
		8.287	19.248	29.633	31.044	23.595	18.200	18.155	20.081	21.081	23.167
B ₅	F	.406	.325	.322	.325	.303	.274	.288	.275	.247	.248
		.018	.004	.001	.000	.005	.012	.006	.008	.007	.006
		9.558	12.663	18.007	19.496	10.331	7.719	9.166	8.409	8.607	8.949
B ₆	F	.463	.306	.410	.413	.425	.429	.462	.461	.486	.386
		.273	.268	.018	.014	.043	.052	.032	.032	.031	.004
		1.415	1.348	6.858	7.318	4.693	4.267	5.304	5.228	5.309	9.935
B ₇	F	.318	.306	.279	.276	.207	.195	.154	.151	.151	.161
		.053	.022	.004	.003	.056	.085	.103	.110	.104	.071
		5.417	6.884	11.097	11.496	4.127	3.293	2.905	2.772	2.861	3.560

SEMBOWER

¹Format: Regression coefficient
Level of significant
Partial F for individual coefficient

²n: number of cases

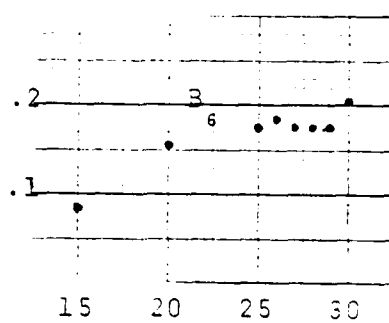
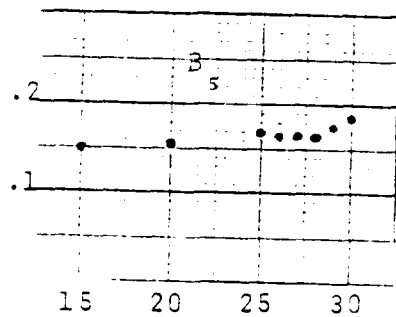
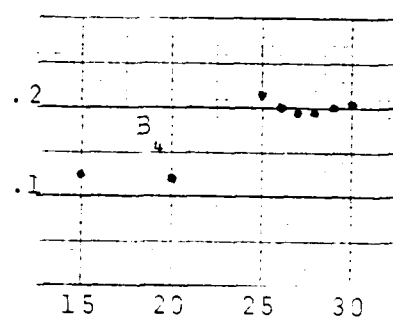
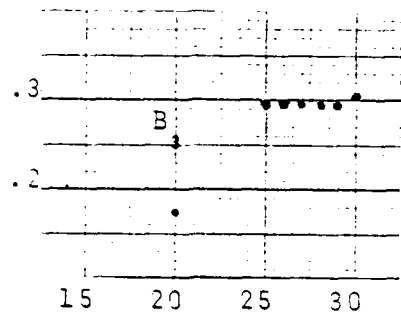
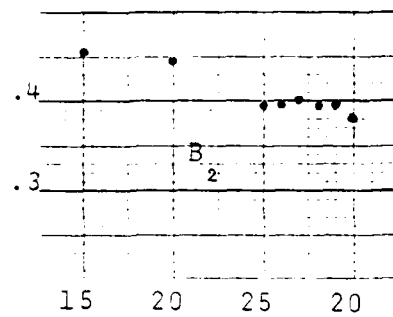
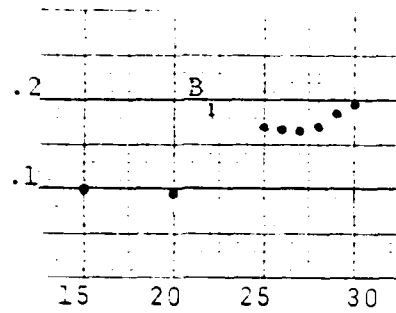
WILLIAMS

n ²	15	20	25	26	27	28	29	30	31
B ₁	.288 ¹	.241	.275	.301	.318	.290	.191	.142	.146
	.253	.229	.109	.073	.052	.060	.239	.356	.334
	1.549	1.603	2.858	3.636	4.314	3.979	1.471	.888	.993
B ₂	.465	.452	.434	.425	.418	.418	.391	.385	.387
	.002	.000	.0000	.000	.0000	.000	.0000	.000	.0000
	24.344	41.073	64.570	66.292	68.660	70.792	51.477	50.058	54.353
B ₃	.078	.040	.078	.101	.117	.114	.208	.239	.237
	.812	.882	.746	.669	.614	.617	.413	.345	.339
	.061	.023	.108	.189	.263	.257	.699	.933	.955
B ₄	.313	.387	.350	.324	.307	.323	.306	.305	.302
	.059	.003	.001	.001	.001	.000	.001	.001	.001
	5.067	14.386	16.033	16.174	16.640	21.198	15.230	15.031	15.585
B ₅	-.259	-.222	-.312	-.266	-.235	-.243	-.163	-.039	-.040
	.483	.353	.124	.163	.194	.172	.400	.802	.789
	.547	.935	2.619	2.120	1.816	2.004	.738	.064	.074
B ₆	.154	.075	.076	.098	.114	.108	.121	.131	.131
	.529	.696	.659	.559	.491	.504	.505	.471	.462
	.439	.161	.202	.354	.494	.463	.459	.537	.559
B ₇	.136	.171	.215	.251	.276	.182	.226	.241	.237
	.783	.685	.402	.316	.260	.350	.297	.267	.263
	.082	.173	.738	1.062	1.348	.917	1.142	1.289	1.314

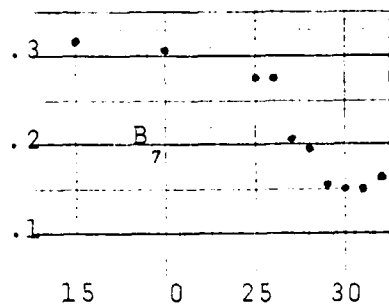
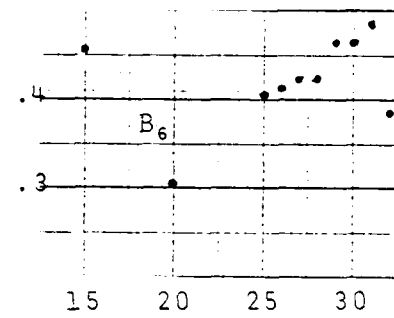
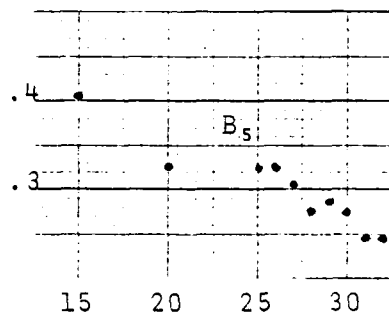
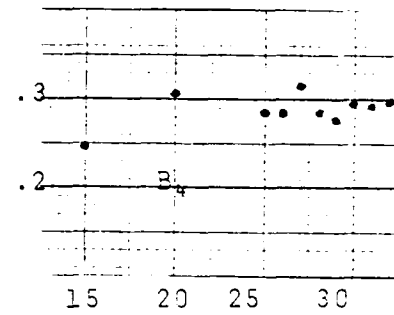
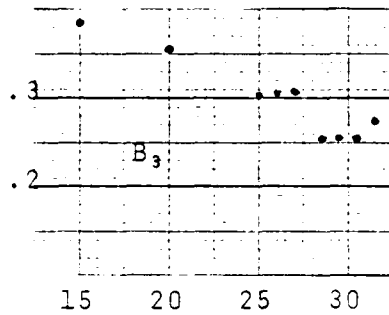
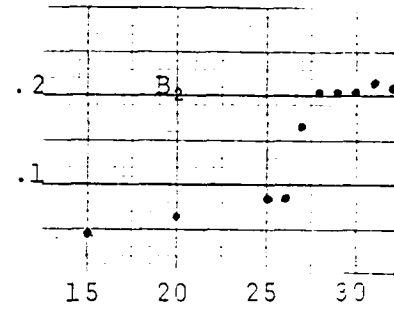
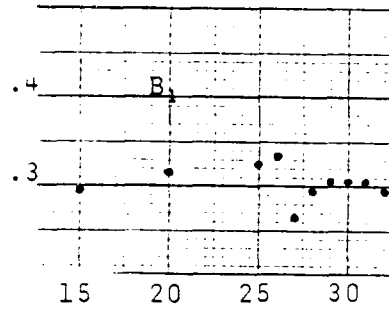
¹Format: Regression coefficient
Level of significant
Partial F for individual coefficient

²n: number of cases

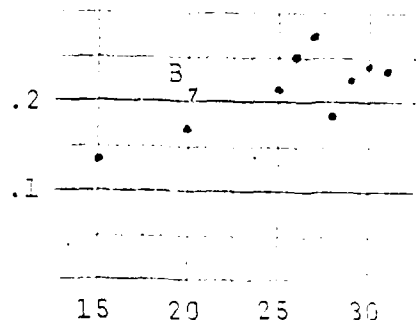
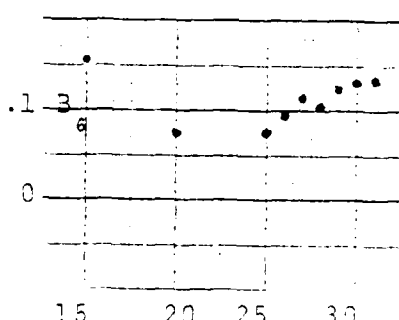
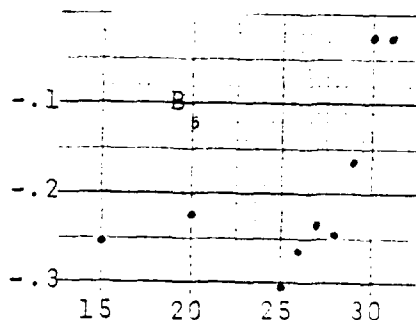
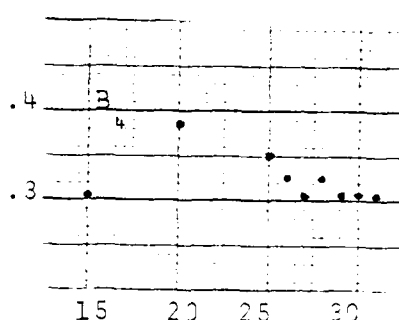
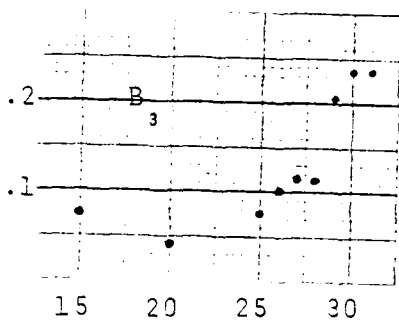
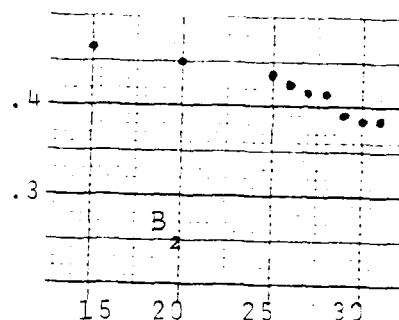
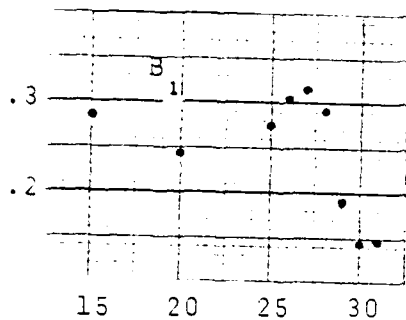
IPAVEC



SEMBOWER



WILLIAMS



APPENDIX L
RELIABILITY COEFFICIENT
CALCULATIONS

Example of Reliability
Coefficient Calculation

ANOVA - Management Rights by Case Number (Williams)

	Sum of Squares	DF	Mean Square	Sign of F
Main Effect (Management Rights)	23.247	30	.775	.267
Residual	40.000	62	.645	
TOTAL	63.247	92	.687	

$$r = 1 - \frac{\text{Mean Square Residual}}{\text{Mean Square Main Effects}} \quad (\text{Winer:288})$$

$$= 1 - \frac{.645}{.775} = .168$$

Number of cases 31
Number of scorers 3

Ipavec

Management Rights	$r = 1 - \frac{.822}{1.916}$	= .547
Contract Language	$r = 1 - \frac{1.156}{1.349}$	= .143
Past Practice	$r = 1 - \frac{.333}{1.533}$	= .783
Fairness	$r = 1 - \frac{1.033}{2.343}$	= .441
Effect on the Worker	$r = 1 - \frac{.511}{.517}$	= .012

Sembower

Management Rights	$r = 1 - \frac{.352}{1.382}$	= .745
Contract Language	$r = 1 - \frac{.801}{4.308}$	= .814
Past Practice	$r = 1 - \frac{.454}{1.580}$	= .713
Fairness	$r = 1 - \frac{1.374}{2.512}$	= .453
Effect on the Worker	$r = 1 - \frac{.753}{.978}$	= .230

Williams

Management Rights	$r = 1 - \frac{.645}{.775}$	= .168
Contract Language	$r = 1 - \frac{2.129}{2.906}$	= .267
Past Practice	$r = 1 - \frac{.398}{1.832}$	= .783
Fairness	$r = 1 - \frac{1.505}{1.764}$	= .147
Effect on the Worker	$r = 1 - \frac{.409}{1.262}$	= .676

APPENDIX M
WILLIAMS - MODIFIED MODEL
FULL SEVEN
CUE REGRESSION MODEL

<u>Cue</u>	
Management Rights	.146 ¹ .334 .973
Contract Language	.387 .0000 54.853
Past Practice	.237 .339 .955
Fairness	.302 .001 15.585
Effect on the Worker	-.040 .789 .074
Negotiating History	.131 .462 .559
Prior Awards	.237 .263 1.314
R ²	.901
Adjusted R ²	.870
Multiple R	.949
Overall F	29.782
Significance	.0000

¹Format: Regression coefficient
Level of significance
Partial F for individual coefficient

APPENDIX N
COMPUTER PROGRAM TO TEST FOR
POLICY DIFFERENCES

RUN NAME	REGRESSION TO TEST FOR POLICY DIFFERENCES
PRINT BACK	CONTROL
VARIABLE LIST	D1,N1,C1,P1 TO P7
INPUT MEDIUM	CARD
N OF CASES	93
INPUT FORMAT	FREEFIELD
IF	(D1 EQ 6) D1=0
IF	(D1 EQ 5) D1=1
COMPUTE	DP1=D1*P1
COMPUTE	DP2=D1*P2
COMPUTE	DP3=D1*P3
COMPUTE	DP4=D1*P4
COMPUTE	DP5=D1*P5
COMPUTE	DP6=D1*P6
COMPUTE	DP7=D1*P7
SELECT IF	(D1 EQ 0 OR 1)
REGRESSION	VARIABLES=C1,P1 TO P7,D1,DP1 TO DP7/ REGRESSION=C1 WITH P1 TO P7(4),D1,DP1 TO DP7(2)/
READ INPUT DATA	

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